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ABSTRACT

In 1985 a project was developed to strengthen policy guiding regionalization of occupational programs in New Jersey county community colleges. The project had three major goals: to establish a policy for the regionalization of selected occupational programs offered by the colleges; to describe ways that programs could be identified for regional designation, techniques for periodic review of such designation, and mechanisms for coordinating designated regional programs throughout the state; and to provide a statement about regionalism that could help spread understanding of the concept and its implementation. The project consultants first concentrated on developing a statement to build understanding of the concept of regionalism. Second, they focused on a start toward building a preliminary data base needed to accomplish the goals above. Other considerations addressed by the consultants were the need for keeping a future perspective, deciding the scope of regional service, developing an approach to considering program costs, and data acquisition and decision making as targets of policy refinement. Special attention was given to enrollments in developing the basic data needed for a regionalism policy. A range of 14 to 84 programs were designated as significantly non-local in service to students as a result of analysis on three levels: programs showing 50% of more of 1984 headcount enrollment from beyond the home county, which produced a total of 14 programs; programs showing from 30% to 49.9% of the students residing beyond the home county, an additional total of 48 programs; and programs with 25-29.9% of student enrollment coming from outside the home county, with an additional total of 22 programs. Ultimately, the study produced a set of fourteen principles to guide the development of regionalism within New Jersey. Appendixes are attached which provide data on programs and enrollment distribution, the future employment picture, associate programs within New Jersey, and academic majors offered exclusively outside of New Jersey. (JMC)

ED317235

TO STRENGTHEN POLICY GUIDING REGIONALIZATION OF OCCUPATIONAL PROGRAMS IN NEW JERSEY COUNTY COMMUNITY COLLEGES

(A Report to the Office of Community College Programs,
New Jersey Department of Higher Education)

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November 1985

JC 900 184

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November 27, 1985

Dr. Narcissa A. Polonio Jones
Director
Office of Community Colleges
New Jersey Department of Higher Education
225 West State Street
Trenton, NJ 08625

Dear Dr. Jones:

I am pleased to send herewith the final report on the project to help strengthen a policy to guide regionalization of selected occupational programs offered by New Jersey county community colleges. Members of the consultant team believe that the report accomplishes the purposes to which the project was directed within the resources provided and data available about the programs offered.

We would emphasize our view that accomplishment of this project should be viewed as the first phase of a multi-phased plan of action to strengthen regionalization of selected postsecondary occupational education in New Jersey. This report lays a foundation for discussion and decisions about general policy directions and principles that should be emphasized in developing guidelines for regionalization. It was prepared also to help spread understanding about the concept of regionalization and its usefulness in community college programming. Significant decisions of a policy nature remain to be made by leaders of New Jersey county community colleges at state and local levels about more operational aspects of principles and guidelines that we recommend for your consideration in the report. Action of this kind, we suggest, should be the next phase of attention on the matter.

We appreciate the help you and colleagues in your office and in the Department gave in reviewing the preliminary draft of the report. It helped us see ways to make the final outcome more useful. Please note that your request for data and analysis which went beyond the original design of the project is answered by the material in Appendix C and related text.

As you know, our interest in this subject is high. Please let us know if there are ways that we can assist further in your use of the report in the Department, in the work your office will carry on with the colleges, or in other ways. We want to continue to be of help.

Sincerely,

S.V. Martorana

S.V. Martorana
Project Director

cc: Members of Consultant Team
Members of Committee of Presidents (letter only)

ACKNOWLEDGEMENTS

Completion of a project with the magnitude of the one on which this report is based and production of a report that accurately describes the project and its outcomes are feasible only when many people in many organizations help out. Members of the team of consultants feel obligated to recognize this as a general fact and to thank more specifically those persons and organizations whose role in helping us was particularly critical to the end realized. To list all such persons and groups would be virtually impossible, for they would include persons unknown to us on the staffs of the county community colleges and in the Department of Higher Education in New Jersey without whose help the data basic to examining policy-related issues about regionalism applied to the colleges' occupational programs could not have been acquired.

Representing the excellent cooperative assistance given by the Department were especially Dr. Narcissa A. Polonio Jones, Director, Office of Community College Programs; and staff members Carol Bronk and Marguerite Beardsley. Earlier officials in the same office--Dr. Ruppert Jemmott, a former director, and Dr. Joyce Bloom--were instrumental in helping to establish the need for the project and to conceptualize an approach to getting it done. From the beginning to this day, Dr. Edward D. Goldberg, Assistant Chancellor for Academic Affairs, gave guidance to and supported the undertaking. Kathleen Delehanty, Program Specialist, Office of Policy Research and Planning, was instrumental in helping to get enrollment data comprehensively and in a systematic way. Robert Jacoby, director of Special Training

Services (Job Training Partnership Act) and Director, Industrial Technology, Bureau of Vocational Education, answered inquiries about planning for occupational programs at other educational levels. Dr. Edward Cohen, then Assistant Chancellor, Research Planning and Health Professions, provided helpful background and related information of interest about regional planning in other sectors of New Jersey government and about manpower studies completed in the state.

Endorsement by the Presidents of the New Jersey County Community Colleges was essential. It came from them both individually and collectively. They responded to our inquiries, whether by phone or by mail. The Association of Presidents named a special committee to work with the consultant team and commissioned Eric Perkins, Executive Director of the County Community Colleges Presidents Association of New Jersey, to help maintain liaison with the institutions, a task performed effectively and needed at several critical points in the data gathering stage.

Finally, but with strong feeling, we must thank Ms. Debbie Putt for the many hours of effort she gave to the statistical analyses of enrollments and to editing and production of our reports. Her performance was exemplary and extremely helpful.

To all who have helped in all the ways mentioned above and in others, we are deeply grateful.

S.V. Martorana, Project Director

L.W. Bender

E. Kuhns

J.L. Wattenbarger

EXECUTIVE SUMMARY:
TO STRENGTHEN POLICY GUIDING REGIONALIZATION OF OCCUPATIONAL PROGRAMS IN NEW JERSEY COUNTY COMMUNITY COLLEGES

This project had three major goals: (1) to identify and describe elements of a policy by which the New Jersey Department of Higher Education and the New Jersey county community colleges can jointly implement regionalization of selected occupational programs offered by the colleges; (2) to describe ways that programs can be identified for regional designation, techniques for periodic review of such designation, and mechanisms for coordinating designated regional programs throughout the state; and (3) to provide a statement about regionalism as applied to academic programming in community colleges that could help spread understanding of the concept and its implementation. Given limitations of time and resources and the relatively undeveloped stage of implementation of the previously established approach to regionalism in county community college programming, a single project that would deal wholistically and simultaneously with all aspects of regionalism in New Jersey was deemed to be infeasible. This project, therefore, was viewed as the first phase of a multi-phased approach. In this phase, the three goals enumerated were to be emphasized. The project was expected to produce recommendations of elements of a strong policy on regionalism. It was not expected to produce recommendations of specific programs to be designated as regional, nor specific decision points in operating procedures to be applied in making regionalization decisions. Those

aspects of policy implementation are expected to be the next phase of attention.

Therefore, the consultants first concentrated on developing a statement to build understanding of the concept of regionalism. This is done in Section I. Second, they focused on a start toward building a preliminary data base needed to accomplish the goals above. Section II covers that effort. The next stresses the need for keeping a future perspective, and sections IV, V, and VI bring forth other considerations that are important in translating observations from analysis of these preliminary data, including the matter of costs, coupled with the consultants' knowledge of regionalism, into policy guidelines for regionalization decisions.

Special attention was given to enrollments in developing the basic data needed for a sound regionalism policy. With the cooperation of the Department of Higher Education, the Association of Presidents, and the individual county colleges, a series of descriptors was gathered from the colleges for each of 318 occupational programs operating in the state's community colleges. For the purposes of this study, the most important information was the distribution by county of residence of students enrolled in each program.

These data provided the information for categorizing all existing programs according to service coverage, with the categories being primarily local, potentially regional, and potentially statewide. A total of 234 programs appeared to draw students primarily from the home county, while as few as 14 or as many as 84 programs drew a large enough proportion of their enrollment from beyond the home

county, or from beyond the home county and the adjacent contiguous counties, to show potential for being designated as either a regional or a state program, respectively.

The range of 14 to 84 programs which might be designated as significantly non-local in service to students results from the cutting point selected for data analysis. Outcomes were examined for three levels: (1) programs showing 50% or more of 1984 headcount enrollment from beyond the home county, which produced a total of 14 programs; (2) programs showing from 30 to 49.9% of the students residing beyond the home county, an additional total of 48 programs; and (3) programs with 25-29.9% of student enrollment coming from outside the home county, with an additional total of 22 programs. For each of these categories of programs, the pattern of student residence was further examined to determine the proportion residing not only beyond the home county, but outside of the contiguous counties as well; from this examination came the list (from each of the three categories of programs) which might be designated as statewide in service coverage. Depending on the cutting point used, the number of possible statewide service programs could be as small as 3, or as large as 9, if the programs found in the three categories were also examined against the criterion of showing at least 20% of the enrollees residing beyond the home and contiguous counties.

It is important to note that the examination of programs necessary for regionalization decisions is different from the periodic process of program review carried out by the Department of Higher Education. The objectives of the two sets of reviews are quite

different, as are the personnel proposed to be involved. A periodic review would also be needed for confirming or amending both the elements of a regionalism policy in New Jersey and the regionalization decisions resulting from implementation of that policy. Personnel suggested for a regionalism advisory body would include representives from the Office of County Community Colleges, other appropriate offices within the Department of Higher Education, the Association of County College Presidents, others at the college level, and, as an important addition, the citizenry in the entire multi-county region served by that particular program. It should be noted that the program (and not a standard set of counties termed a "region") is the recommended focal point for determination of a particular service region, which expands to include the contiguous counties which are contributing substantially to the program's enrollment over a given period.

Finally, this study produced a set of principles to guide the development of regionalism in New Jersey. They are listed topically below, elaborated on throughout this report, and discussed specifically in summary form in Section VII. We strongly recommend:

Principle 1 - Protect priority given to localized service.

Principle 2 - Assure that decisions about regionalization of programs are made on a multi-factor basis.

Principle 3 - Indicate the priority of factors used in making regionalization decisions, and of sensitivity to the interrelationships among the factors utlized.

Principle 4 - Emphasize the need for and importance of incentives.

Principle 5 - Maintain flexibility in use of incentives.

Principle 6 - Design and maintain a database providing consistent integrated information requisite to making regionalization decisions.

Principle 7 - Assure a "citizens' voice" in regionalism design and regionalization decisions.

Principle 8 - Encourage multi-sector participation and inter-sector communication.

Principle 9 - Assure periodic review of (a) policy elements, and (b) regionalization decisions.

Principle 10 - Recognize proper relationships of regionalism to program review and coordination.

Principle 11 - Encourage periodic systematic review of job opportunities in the region and state for graduates of existing and proposed regional programs.

Principle 12 - Emphasize the importance of maintaining a strategic stance.

Principle 13 - Increase the identity and legitimacy of regionalism and regionalization.

Principle 14 - Encourage and assist leadership development at all levels (state, regional, local) dedicated to regionalism.

The interest in regionalism shown by the Department of Higher Education in commissioning this study, the policy guidelines outlined above, and the preliminary data design used to illustrate steps toward regional program designation provide a platform from which New Jersey can now launch a systematic regionalization effort. A strong

call is made for energetic efforts in leadership development to promote and implement regionalism. Staff development at the Department and county college levels, using the materials prepared for this report or indicated as needing compilation, is a next step in giving visibility to the concept, planning for needed data refinement (e.g., details of cost and job opportunity information) and for policy formulation (e.g., deciding on incentives to the colleges for fielding a regional or statewide program), and, finally, designating selected occupational programs as regional or statewide in service coverage. Associated Consultants in Education, as always, stand ready to assist in these next steps.

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THE PROJECT IN CONTEXT

Like many other states, New Jersey is seeking ways to provide optimum services in postsecondary education with maximum efficiency. One of the approaches that is being used to achieve this objective in many states is to encourage institutions to work together and to share resources in ways which emphasize the strengths of the different institutions and help offset their weaknesses. Regionalism is one of the several approaches to such interinstitutional cooperative activity.

Definition of Regionalism and Regionalization

Throughout this report, the term regionalism will be used to refer to the concept of looking beyond the local community college sponsorship area to guide academic program decisions; the term will be used also to refer to the intent that is implicit when that look is taken, namely, to give legitimacy to community college responses to regional, or perhaps even statewide needs, as well as those of the local sponsorship area. Because the general policy framework relating to regionalism must make clear the objectives to be reached by its use, the term regionalism also encompasses that leadership intention.

Regionalization, in contrast to the descriptive nature of the term, regionalism, is used to refer to the action needed and taken to translate the concept into an operational reality in making academic program decisions. In this report, the term is used to refer to

whatever is involved operationally in having an occupational program offered by a New Jersey county community college designated by the Department of Higher Education as serving a geographic area larger than the county in which the college which offers it is located and, further, having that program recognized and accepted to provide that broader service by the other county community colleges and postsecondary institutions in New Jersey. This definition is consistent with that established for use nationally (Martorana & Nespoli, 1978). In that study, regionalization was defined as " . . . the process by which the concept is put into practice--the implementation of regionalism is regionalization. It is manifested in some form of interinstitutional cooperative arrangement" (p. 3).

Academic Programming in Community Colleges and the Need for Regionalization

Community colleges in New Jersey, as in other states with well-developed community college systems, stress their primary mission of providing postsecondary educational programs and services which meet needs of the localities in which they are located and which participate in their support. The local unit in New Jersey is the county which sponsors the institution.

Consistent with the idea that community colleges are to give priority to serving students in their sponsorship areas, public policy at both local and state levels in New Jersey gives strong support to local official control of decisions about what academic programs are to be offered. The general procedure followed is for local authorities to examine need for programs leading to award of associate

degrees or certificates and to request approval of such programs by the Department of Higher Education. That approval is necessary for colleges to claim state financial aid; the aid is an enrollment-driven formula approach based on the level of full-time equivalent student enrollment in courses making up the approved programs of study.

The structure and process of determining need for and approving academic programs in community colleges in states where these colleges are similarly established and operated immediately generate conditions calling for a policy that deals with issues of regionalism and regionalization. This results because although the matter of local community needs is well resolved, that of dealing with needs of areas larger than the individual college sponsorship areas or even statewide but which can be given a good response by community college programs is not addressed. Put simply, a successful coverage of the needs of all of the community college sponsorship areas in a state does not automatically guarantee a successful coverage of the needs of a larger area of a state or of the state as a totality; the states quickly discover that some academic programs can be justified and deemed educationally and economically feasible only when viewed as responses to regional sub-state or statewide needs. Typically, these programs are identified by the fact that enrollments large enough to justify their operation must draw on a population larger than that found in a particular community college sponsorship area. The rule in academic programming that results is: If a program can draw sufficient enrollment from a single community college sponsorship area and it speaks also to the needs of that area's economic, social, or cultural

development, it is locally justifiable and no issue related to regionalism or regionalization is raised; if, however, a program is justifiable because it can attract enough enrollment to be educationally and economically feasible but to do so it must draw on the population beyond its own boundaries (and it relates, therefore, to serving regional or statewide needs for economic, social, or cultural development), issues of regionalism and regionalization are raised and a policy for handling them must be formulated.

Regionalism in Other States

Although attention to regionalism is given in all states where community colleges are operating, the level of attention given the matter and the approaches adopted to dealing with the issues involved vary greatly from state to state. It is not possible to identify and describe an approach that is standard across even enough states to identify it as a possible model for other states to consider for adoption either in total or in modified form. This generalization results from the fact that the several states have developed their community college systems from different antecedent educational, political, and economic conditions.

In the case of New York state, for example, which has many features similar to New Jersey in the law and related administrative policies which govern community colleges, two policy directions have prevailed to deal with issues related to regionalism. One of these directions was taken early (1948) to recognize and allow (without encouragement or discouragement) student mobility across sponsorship

area lines while not generating an unfair burden on the local sponsor of a community college; this policy was implemented by statute authorizing a "charge back" by the sponsor to the home county of the student crossing the sponsorship line. New Jersey adopted a similar "charge back" provision when later it acted to establish county community colleges. The second direction taken in New York, however, was not possible to adopt in New Jersey. This action moved to take advantage of the fact that in New York state prior to enactment of the Community College Enabling Act there had been established six public two-year colleges strategically located in six widely scattered regions of the state; the six two-year agricultural and technical colleges all operate as integral units of the State University of New York and all maintain college-owned dormitories, which is not characteristic of the locally sponsored and administered public community colleges. The policy followed in guiding development of two-year programs has been to authorize local control and decision on programs justified on the basis of local community needs. Programs justifiable only by considering larger regional or statewide needs were encouraged at the regionally located state university agricultural and technical colleges. More recently, another action which recognized regional service of community college programs was taken. This was to permit, in the case of two colleges, a change of sponsorship from a relatively smaller sponsoring local jurisdiction (a school district or a municipality) to a county.

Approaching the issues of regionalism through major reorganization of supporting districts has also been used in other

states. Illinois used this approach by permitting community college districts to annex adjoining areas not in a community college district and also by authorizing the merging of community college districts. Nebraska reconstructed its entire two-year college system by creating six regional technical-community college districts and merging the previously separated technical and community colleges that were locally operating within the state.

A growing number of states are using the regionalism approach also to attack the vexing problem of coordinating establishment and operation of postsecondary occupational programs offered by different sectors of postsecondary education. Illustrations are California, which has authorized Regional Centers of Adult and Vocational Education; Florida, where area vocational schools and community colleges are required to plan and conduct programs on a geographically described regional basis; and Oregon, where all levels of higher education, including community colleges, are required to cooperate on a similar basis.

For purposes of this report, special attention is called to the approach to regionalism in community college programming used in Maryland, because we believe its development is especially relevant to conditions in New Jersey. Community colleges in Maryland have a mission and operate in a structure of public policy and post-high school education that parallels New Jersey's in many important ways. In both states there is high endorsement and strong encouragement of local control of academic decisions; the law in both states requires fiscal support from local and state sources as well as from students

as the main basis for financing operations and also provides for sponsorship of community colleges by local governmental jurisdictions, city or county; neither state has public two-year colleges like the New York state agricultural and technical colleges with a specific mission to serve regional needs encompassing areas also served by local public community colleges. A major difference, however, is that in Maryland there is a state board responsible for state-level coordination of community colleges which serves an intermediary function between the local public community colleges and the Maryland State Board for Higher Education, whose functions are quite comparable to the New Jersey Board of Higher Education. Another key difference is that Maryland does not have a "charge back" provision in its financing procedures.

Concern about regionalism issues did not surface in Maryland until the state's system of local community colleges, which began in 1946, was well advanced. There are now 17 community colleges in Maryland. For reasons described above in the section on academic programming in community colleges, however, issues related to regionalism surfaced and a policy and procedure for designating particular institutions and academic programs as serving a regional or statewide service evolved. A first step in this evolution was 1965 legislation authorizing the establishment of regional community colleges controlled by boards of trustees drawn from the political subdivisions jointly sponsoring the colleges. In effect, this authorization simply expanded the recognized support and service area of a local public community college. There still was no response to

the need for regionalism--a look beyond the scope of academic service provided by individual local public community colleges to consider needs of broader sub-state regions and the state as a whole. The following, taken from the Maryland State Board for Community Colleges Instructional Program Manual (1984) describes the situation well:

> In the early 1960s, Maryland community colleges began to develop increasing numbers of specialized technical programs designed to prepare students for immediate employment. The number of specialized occupational programs offered has increased so that Maryland community colleges currently offer an aggregate of over 300 occupational programs.
>
> Many of these technical programs are justifiably duplicated by several community colleges because of large student enrollment interest and high manpower employment availability. With the development of an increasing number of highly specialized technical programs, however, the duplication of certain programs by neighboring colleges, or colleges within a geographical region, may be prohibitively expensive to both the local political subdivision and the state. (p. 8)

Guidelines developed by the staffs of the Maryland State Board for Community Colleges and of the colleges for special designation of programs as regional or statewide were based on the ability of the college to accommodate additional students, the need for additional students to sustain the program, the unit cost of the program, and the uniqueness of the program. (The consultant team for the New Jersey community colleges would advocate adding to that list of considerations the strength already possessed (or clearly shown as readily capable of development there) by an institution in terms of faculty, library, laboratory, or shops, and related elements of academic quality). Review and approval procedures involve five steps:

(1) college submission of a letter of intent, including a rationale for proposing special designation of a program, (2) circulation of the letter of intent by state board staff to all community college presidents for comment, (3) college submission of a formal proposal, (4) State Board of Community College action on staff recommendations, and (5) notification to college presidents of state board action.

Note should be made of the fact that impetus for concern in Maryland for special designation of programs as regional or statewide stemmed from two factors, one being the concern about duplication of high-cost technical programs and consequent generation of "prohibitively" high expenses to both the local sponsoring political subdivision and the state, the other being the fact that there was no "charge back" financing authorization in the law so that students from outside the sponsorship area were charged an out-of-sponsor area tuition. Under the Maryland plan, colleges with specially designated programs are compensated by the state for "out-of-county tuition reimbursement" and students who are residents of the state but not of the sponsorship area are charged only the in-district tuition fee.

The first of the two factors in Maryland is also a stimulus for concern about regionalism in New Jersey; the second is not because New Jersey has a "charge back" financing provision. So, while the motives for action on special designation of programs as regional or statewide in service are not fully comparable, the policies and procedures developed from Maryland's prior experience can be helpful. In New Jersey, existence of a "charge back" financing provision satisfies the condition that mobility of students be recognized and allowed; the

state is not involved. In Maryland, because the state is involved in reimbursing sponsors for "out-of-district" student attendance, there was more immediate and stronger attention given to regionalism issues.

The consultants propose that the proper role of the state in situations like New Jersey is to encourage and provide leadership for regionalism by examining programs for potential regional or statewide service and to seek special financial support from the state for programs so designated because they do, in fact, serve interests broader than those of the sponsorhip of an individual local public community college.

Regionalism in New Jersey

Recognition that regionalization of programs offered by New Jersey county community colleges would contribute to improved services by the community colleges goes back many years. In the statement of Regulations and Standards for New Jersey Community Colleges, published by the Department of Higher Education in September 1973, there appears this regulation:

> 760 - Regionalization of Programs
>
> The Curriculum Coordinating Committee shall suggest to the Chancellor and Board of Higher Education such regional specialization of programs as it deems advisable, together with the rationale for such recommendations concerning general curriculum offerings. (p. 36)

Despite the existence of this regulation and a plan for the regionalization of certain high cost occupational programs developed by the staff of the Department of Higher Education, relatively little action was taken by the colleges and Department over the years. In a

penetrating look at the way the plan was perceived by the academic deans of the 17 New Jersey county community colleges in the spring of 1978, Parrish (1979) reported that, "Nine deans agreed with the reasonableness of the plan, six disagreed, and one did not respond" (p. 42). Parrish's inquiry was made as part of a national study of statewide approval mechanisms applied to academic programs in community colleges along with a case study of New Jersey's practices. The report did not cover the reasons why the academic deans replied as they did as to the plan's reasonableness.

Advocacy of the concept, however, has persisted over the years. The Statewide Plan for Higher Education produced in 1981 by the Board of Higher Education offers the following recommendation concerning interinstitutional cooperation:

> The future development of high cost technology programs at the community colleges should be based on a policy of regionalization and cooperation with other institutions providing similar programs. (p. 39)

The plan later indicates that cooperation between the community colleges and the area vocational technical schools was particularly important.

The plan viewed the diversity of providers of vocational education in the state as an asset, but emphasized that "cooperative ventures between and among them could reduce unnecessary costs and duplication of programs and effort and could make possible complementary programming and services" (p. 148). Furthermore, the plan stated that the community colleges should continue to be the major providers of collegiate vocational and occupational education,

which at that time represented 97% of New Jersey's collegiate vocational education programs. The plan recommended as an action to be taken:

> Present high cost technology programs at the community colleges should be regionalized and policies should be designed to assure that this occurs. Proposals of such new associate degree programs should include assurance that they will be regional ones where appropriate. (p. 149)

Endorsement of the concept of regionalism has come also from a number of other high-level official bodies. The Commission to Study the Mission, Financing, and Governance of the County Colleges State of New Jersey, in its report Excellence and the Open Door: An Essential Partnership, published in March 1979, recommended several actions that bore directly and indirectly on the concept. One in particular and its elaboration merits quotation:

> Recommendation 21: The state should encourage the regionalization of high cost technical programs by community colleges through differential funding.
>
> It is the Commission's view that regionalization--i.e., the selective location of an instructional program based upon institutional resources, availability of students, and the training needs of the community/region/state--will promote economy and broaden access. (Vol. One, p. 25)

Although not addressing the concept of regionalism in direct terms, the December 1983 Report of the Governor's Commission on Science and Technology included a number of recommendations that carried implications for the concept and its application in ways which would involve the community colleges. Notable among these is Recommendation 25, which called upon the Governor to " . . . establish

an interagency Cabinet level committee to coordinate all public vocational education and training programs" (p. 32).

By 1983, 13 programs offered by New Jersey community colleges were designated as regional programs. The record shows, however, that attention to designation of regional programs and the monitoring of their development and productivity was not given significant visibility. A survey of the status of regionalization in New Jersey conducted by the Office of Community College Programs reported in an interoffice memorandum on May 6, 1982, as its major conclusion that, "There is, therefore, no cohesive State-wide awareness of the concept of regionalization, even on the part of those colleges which are designated as regional." That observation gave reason to setting improvement in general awareness of regionalism as one of the objectives to be reached by the current project.

Advantages Attached to Regionalism

The problems encountered in academic programming in community colleges to which regionalism provides some solutions were described at the outset of this section. Because regionalism serves to alleviate those problems, states in which positive attention is given to the concept and its implementation have a number of advantages over those that do not.

A summary of the advantages generally attached to regionalism and regionalization brings out two major and several lesser ones. The two major ones are: (1) a higher order of efficiency in providing the programs needed to serve areas of the state larger than the sponsoring

jurisdictions (in New Jersey, the counties), and (2) a higher order of effectiveness in serving the same purpose.

The greater efficiency is attained as a result of eliminating or reducing program costs to both local sponsors and the state. These costs, without regionalism, accrue from two or more community colleges offering programs that need larger population bases than are generated by the sponsoring area and so establishing two or more programs of small enrollment when one or a fewer number could produce ones of more economical size.

The greater effectiveness that regionalism spurs in academic programming is a result of the interaction of several factors. Beyond the matter of economy of scale just described, regionalism allows consideration of other factors in deciding on location of programs to be designated as regional or statewide in service. Among those factors, ones that can make programming not only more economical but more supportive of academic excellence include consideration of existing strengths of an institution (faculty, libraries, specialized instructional resources, etc.); the way a program can be made stronger by elements in the economy, society, and culture of the locality in which the college offering a regional program is located (unique industries, established cooperative relations with other levels of education--public and private, etc.); and the potentialities of a program serving a "magnet" function, that is, to start a new line of academic development having high potential to enhance community college service both in the region and the state as a whole.

In this report, we term other advantages lesser ones than those first noted not because they are insignificant, but because we see them really as sub-sets of the larger advantages identified. For example, a common call is made to focus regionalism on "high-technology/high-cost programs," and correctly so. But the basic case of doing so is not inherent in those programs; the case is in the fact that regionalism makes it possible to deal with any "high cost" program more effectively, whether the reason for the high cost is the need for faculty who are in high demand in industry, the need to have costly laboratory or clinical resources, the low subscription level of students because of limited employment opportunities or social status of the field, or other factors. Similarly, it is sometimes argued that regionalism is a way to reduce "wasteful duplication," and it is. But it is also, more positively, a way to encourage interinstitutional cooperation in postsecondary educational programming. It can encourage and support institutions in efforts to plan collaboratively, to concentrate on their different strengths in complementing each other's programs, and to plan with their communities more comprehensively. These advantages can serve across sector lines (community colleges, area vocational schools, four-year institutions--public and private, etc.) as well as within the community college sector with which in this report we have primary concern.

Problems Encountered in Regionalism

Helpful as regionalism can be to academic programming in community colleges, adoption of the concept and efforts to implement it

encounter problems that also need to be noted. A sound policy framework should try as much as possible to reduce the effects of these problems. In summary form, the major problems encountered are these: (1) lack of a broad understanding of the concept on the part of primary decision makers in higher education and the general public, (2) lack of a place which attends to regionalism in the structure of general government and in that directed to higher education, (3) lack of an identity and precision of definition of the service to be provided, (4) inattention to regionalism in state funding approaches, and (5) weaknesses in the capacity of planning in higher education at all levels (institutional and state) to anticipate shifts in need for particular academic programs.

Only a brief elaboration of each of these problems is needed for the purposes of this report. The obstacle of limited understanding of regionalism is to be expected because the concept is relatively new and, to some extent, alien to the historically established approaches to planning and policy decision making in higher education. One of the consultant team members has developed this point in other meetings (Martorana, 1977, 1978, 1981). Part of the explanation for the relatively low level of general understanding of regionalism is found in the fact that there is no well-established place in the structure of general government, or of higher education in most states, where attention to regionalism is a primary focus. In both enterprises, policy planning generally jumps directly from the local or institutional level to the state level. Regionalism, therefore, functions in a kind of "no man's land."

The concept is also confounded by the variety of ways that it is seen applied. Generally, it gives a geographic base, a subdivision of a state. But it is often seen applying to several states together as a subdivision of the nation, as in the Southern Regional Education Board (SREB). Also, it is applied with varying definitions when used for different purposes; thus, health services regional planning tends to emphasize the services provided; regional planning in transportation deals heavily with land use, and so on. We emphasize later in this report that the concept needs to weigh both enrollment patterns and geography in its application to programming occupational programs in New Jersey county community colleges.

Clearly, each incentive for regionalism is evident in the patterns exhibited by the several states in funding community colleges. The long-standing series of annual studies by Wattenbarger (1984) gives no notice of special financial incentives to regionalism and regionalization of community college programs. Some states have recently provided special fiscal support for high-cost, high-technology programs (1985 Pennsylvania legislature, for example, provided for differential funding), and some preliminary evidence is developing that regionalism is being considered in the development of criteria for approving and designating such programs. As yet, however, a generalized national trend cannot be reported.

Finally, the problem of forecasting emergence and decline of need for academic programs plagues program planners generally. Neither those at institutional levels nor ones at state levels show a high

capability. We expound on this point later and recommend an approach that we believe will help to minimize the problem, but not erase it.

Current Project to Strengthen the Policy Framework for Regionalism in New Jersey

Late in 1982, the director of the project basic to this report was invited by the Director of the Office of Community Colleges of the New Jersey Department of Higher Education to confer with him, members of the staff of the Office and other units of the Department of Higher Education, and with the presidents of the county colleges to discuss the concept of regionalism and the possibility of launching a program directed to give stronger attention to the concept and its implementation in New Jersey. The exchanges of memorandums and discussions which followed led finally, in the spring of 1984, to the initiation of this project and the production of this report.

As finally conceptualized and agreed upon, this project was viewed as the first of a two-phase action to strengthen regionalism and regionalization of occupational programs in New Jersey. The first phase would concentrate on policy issues and broad procedures that need consideration, and the second would move to refine conclusions and recommendations coming from that effort and put in place more specific guidelines and procedures for administering regionalism policies established by joint agreement of the New Jersey State Board of Higher Education and the county community colleges.

Purpose

As the first of a two-phased action plan, this project had two major goals. One was to formulate elements of a policy by which the New Jersey Department of Higher Education and the New Jersey county community colleges can jointly implement regionalization of selected occupational programs offered by the colleges. The further intent of the project was to suggest a process for better use of the concept of regionalism to enhance the services that county community colleges provide to the state and its major subdivisions. More specifically, the report was expected to speak to ways that programs can be identified for regional designation, techniques for periodic review of such designation, and mechanisms for coordinating designated regional programs throughout the state; it was not expected to produce recommendations of specific programs to be designated as regional programs nor specific elements of operating procedures (such as a particular enrollment or cost level) to be applied in regionalization decisions.

It should be noted, then, that the intent of the project and this report was to speak to matters of policy and procedures rather than to the objective of identifying and recommending specific programs, either existing or proposed, that should be designated regional programs. Accomplishment of that more detailed extended outcome was prohibited by limitations of resources, time available, and in necessary prior understandings between the participating colleges and the Department of Higher Education. Because of the same limitations, it was also agreed that no call for data would be made that could not

be gathered and provided readily by the colleges and the Department. However, discussions with Department staff members after they had opportunity to review the preliminary draft report generated a request that an effort be made to give New Jersey leaders some insight into associate degree programs offered in other states, but not in New Jersey. Our response to that request for additional service is provided in Appendix C.

The consultants, therefore, concentrated on three basic tasks. They were developing stronger understanding and support of the concept of regionalism, building a preliminary data base needed to accomplish the more limited major goals stated above, and translating observations coming from analysis of those data coupled with the consultants' experience and knowledge of regionalism as practiced in other states, into propositions of policies or guidelines and sound general coordinating procedures.

Accomplishment of these outcomes will set the stage for phase two of action toward regionalization of selected programs. Given acceptance of the proposed policies and adoption of the related procedure recommended in this report, the consultants believe that the more specific tasks of applying an agreed-upon policy framework and naming particular programs for regional designation as well as for promoting and coordinating their operation can be more effectively achieved by the staffs of the Department and the colleges.

Assumptions

Basic to successful accomplishment of a project like this one, which touches a wide range of interests, is the acceptance of certain given propositions by all concerned. We suggest the following:

-- The Department of Higher Education and the community colleges agree that regionalism should not impede or conflict with initiative and action to establish programs needed to serve local county constituencies.

-- Regionalization of designated programs will serve the interests of both the state and region concerned, on the one hand, and the college offering the designated regional program, on the other.

-- Conditions in the economy and society of the state will change, requiring need for flexibility in the approach to regionalism and its implementation.

-- Objective criteria for the initiation and review of regional programs can be established and utilized in priority order as bases for decision making.

-- It is necessary and possible to balance the legitimate dual objectives of (1) protecting the obligation of local colleges to develop programs needed locally and (2) protecting the viability of an already established regional program when a community college utilizing that regional program offered at another college wishes to establish the same program at its own location.

-- Successful development of a regionalism policy to guide regionalization of selected occupational programs offered by New

Jersey county community colleges will require close working together of the colleges and the Department of Higher Education.

-- Once developed and agreed to by the colleges and the Department, the Department, in its state-level coordinating function over all New Jersey postsecondary education, will assure that the policy will be understood and accepted also by the other postsecondary educational sectors in the state.

Procedure

In order to accomplish the project, three types of activity were undertaken. One was to review the record of attention to regionalization of county community college programs and other documentary resources which could help establish a firm basis of understanding of past treatment of the matter and its current status. A second was to establish agreement on the part of the consultants, officials in the Department of Higher Education, and the presidents of the community colleges concerning their commitment to see the project through and to participate in the formulation of a plan of action to support it. A special committee of college presidents was named by the Association of New Jersey County Community College Presidents to work with the consultants, and the Office of Community College Programs and the Research Division of the Department made staff available to provide information needed by the consultants. The third activity was to determine the types of data needed to complete the project and to ascertain to what extent the needed data could be acquired in a timely fashion to permit accomplishment of the project

as planned. As originally designed, the project was to build a base of descriptive data about occupational programs in the county colleges that would provide quite detailed information on student enrollments, full- and part-time, in each program; the geographic origins of students enrolling in the programs offered; numbers of students completing programs offered; and their placement in jobs. Further, it was intended that costs of operation of the different specific degree programs would be acquired and analyzed.

Recognizing that such detailed information was going to be difficult to amass, the consultants and the officials in the Department of Education and the community college presidents agreed to limit the scope of the project only to occupational programs leading to academic degrees and only to an analysis of enrollments in such programs. Early in the course of the project, as the consultants conferred with Department staff members and community college presidents and other officials in the field, it became apparent that useful cost data, graduates produced, placement, etc., by programs could not be generated easily.

It should be noted that data had to meet two conditions to be useful to the project: (1) they had to be available from <u>all</u> colleges to provide a statewide picture, and (2) the enrollments reported for each program at each college had to be disaggregated to show the geographic origins of the students. Although some of the colleges indicated capability to provide the data called for and in the form needed, others could not do so readily, but were able to comply given extended time. As evident in the survey form attached as Appendix A

to this report, the data gathered covered enrollments by program and by county of origin, for each of three years: 1982, 1983, and 1984. The request was for total headcount enrollment of students, as well as headcount of students enrolled full- and part-time. Upon examination of reports from the colleges, it was noticed that for some programs, the figures reported by the colleges for total enrollments for 1984 and 1982 differed from those that had earlier been provided by the Department. Because the figures reported by each college had been provided in direct reply to request for data for this project and, more importantly, because the Department's figures were only aggregate totals not showing the distribution of enrollment by geographic origin of students, the consultants concluded that the project could proceed only if the figures provided by the colleges were used in the analyses that were projected.

Colleges were also requested to report enrollment estimates of programs which were not yet approved by the Department of Education, but were seriously planned for presentation for such approval. The results of the analyses of the data compiled are reported in a later section of this report.

Although utimately reports were received from all 19 county community colleges, the accomplishment did not occur until mid-June 1985. A preliminary report of the results of the analyses made was sent to the Department for review in late July.

Program Coverage

Through the cooperation of staff members in the Department of Higher Education, who provided directories of program offerings in New Jersey and existing information about enrollments, 372 programs currently offered by county community colleges and approved by the Department were identified. Reports from the colleges produced data on 318 programs. A check of the programs reported against those listed by the Department indicated three reasons for non-reporting on some programs: one was that the colleges followed the general instruction that enrollment was to be provided only for those programs leading to an associate degree, either AAS or AS, which were considered by the college to have an occupational academic purpose; another was that the breakdown by counties was not possible to produce; and a third, reported in a few instances, was that the program had been dropped.

Although the procedure used may have resulted in the inclusion of some programs that place a considerable emphasis on the purpose of transfer as well as occupational preparation, the consultants believe it had the advantage of assuring more complete coverage of those programs intended to serve an occupational purpose. In Appendix B we provide a list of the occupational programs by HEGIS number offered by one or more New Jersey county community colleges.

When the consultants and Department staff conferred, following presentation of a preliminary draft report for review, the Department requested extension of the project to include an examination of the scope of offerings in New Jersey, as disclosed by the project, in

comparison with those of other states. The result of our compliance with that request is the material presented in Appendix C.

Attention is called to the fact that the enrollment data provided by the colleges were found in some instances to differ from the program data provided the consultants by the Office of Policy Research and Planning in the New Jersey Department of Higher Education. This occurred even though separate forms for each program shown by the Department as one which had been approved at the college from which data were being requested were pre-labeled using the Department's HEGIS numbers, program titles, and degree awarded. Since the data provided by the colleges were in direct response to a request for their cooperation in this project and, moreover, because the enrollment data they provided were not only the totals for full-time, part-time, and total headcount enrollment for the years requested but disaggregated the totals to show distribution according to the geographic origin of the students--a breakdown absolutely essential to the analysis to be made--the consultants concluded that the project could go forward on a timely basis only by using the data as provided directly by the institutions. As will be emphasized throughout this report, a strengthened base of data and related analyses is essential both to formulating a sound regionalism policy and for its effective implementation. One essential in the needed data base is better information about the residence and migration of students enrolled in specific academic programs; the detail should carry at least to the county of student residence. Indeed, a case could be made for using postal zip codes of student residence because these data are already

gathered in the address of each student and could easily be converted by computer to county of residence.

Having provided the context of the project on which this report is based, and a background of information about regionalism and its potential place in academic programming in community colleges, as well as the advantages and problems it brings to the programming task, we turn attention to the salient factors that need to be kept in mind as a policy for regionalism is formulated. The one that we consider primary, that of enrollments of students to be served, is taken up first.

II

RELATING ENROLLMENTS IN POSTSECONDARY OCCUPATIONAL PROGRAMS IN NEW JERSEY COUNTY COMMUNITY COLLEGES TO REGIONALISM

The overwhelming majority of occupational programs offered by the community colleges in New Jersey, like those of community colleges nationally, serve a local constituency and educational service. Therefore, a first step in examining the 318 programs on which the colleges reported was to separate out from the total those that could be viewed with some justification as serving a regional function. This was done by determining for all 318 programs the proportion of full-time headcount enrollment generated by students coming from the reporting college's home county, that coming from the counties adjoining the home county (considered as a total area), that coming from the rest of the state, and that coming from other places or not known.

Acquisition of data describing the pattern of enrollment distribution by geographic origin of students makes possible an examination of that distribution against various possible decision points to be used as one consideration in designating a program as serving a regional or statewide service. For purposes of analysis, as well to as suggest a basic definition to be adopted as an element in the policy framework for regionalism in occupational programs offered by New Jersey county community colleges, we looked in terms of enrollments drawn geographically. Those drawing enrollment largely from the home county (county in which the offering college is located)

were designated as local in service; ones drawing heavily on the home plus the adjoining contiguous counties were seen as having potential for designation as regional; ones drawing significantly from beyond the home and adjoining counties as potentially eligible for designation as statewide in service. The discussion which follows first centers on two levels of examination (50% and 30%) that are more stringent than the present level used by the Department of Higher Education for designation of a program as regional in service (25%); second, the discussion proceeds to examine the programs against the current requirement; then it turns to a look at the programs currently designated as regional; and finally, presents some related information about trends in enrollments in occupational programs and their implications for a policy on regionalism.

1984 Enrollments in County College Programs

The occupational programs offered by the 19 county community colleges in New Jersey in terms of two levels of relevance to regionalism are indicated in Table 1. The two levels illustrated both use the consideration that the program is drawing significantly from outside of the county in which the college offering the program is located, that is, the home county. Specifically, the first uses as a screening criterion the fact that a program draws 50% or more of its total enrollment in 1984 from outside of the home county; the second uses as the screening criterion the fact that the program draws from 30 to 49.9% of its enrollment from outside the home county. The results of this review, after being applied to all of the 318

Table 1

Programs Reported by College, Number Drawing 50% or More or 30 to 49.9% from Outside Home County, Total, and Percent of Total Reported

College	Programs Reported	Programs Drawing Students From Outside Home County			
		50% or more Outside	30-49.9% Outside	Total	% of Total Reported
Atlantic	16	1	6	7	43.8
Bergen	22	0	1	1	4.5
Brookdale	21	0	0	0	0.0
Burlington	16	0	0	0	0.0
Camden	24	2	2	4	16.7
Cumberland	15	2	0	2	13.3
Essex	27	3	3	6	22.2
Gloucester	17	0	3	3	17.6
Hudson	17	0	1	1	5.9
Mercer	32	3	12	15	46.9
Middlesex	25	0	1	1	4.0
Morris	13	1	3	4	30.8
Ocean	11	0	0	0	0.0
Passaic	12	0	0	0	0.0
Salem	12	0	2	2	16.7
Somerset	17	1	6	7	41.2
Sussex*					
Union	21	1	8	9	42.8
Warren*					
TOTAL	318	14 (4.4%)	48 (15.1%)	62	19.5

*Sussex and Warren report no programs operating 1984-1985.

occupation programs reported by the 19 colleges, are shown in the third and fourth columns of Table 1.

Relatively few programs were discovered that draw 50% or more total enrollment from outside the home county. Only 14 programs, offered by 8 colleges, were so classified. Essex and Mercer each has three such programs. Camden and Cumberland each has two. And Atlantic, Morris, Somerset, and Union each has one.

When the criterion for screening is applied at the second level, that is 30 to 49.9% from outside the home county, 48 programs offered at 12 colleges were discovered. The largest number of these (12) are at Mercer; Somerset and Atlantic each has six; and no other college has more than three.

Some of the significance of the foregoing statistics is brought out in the last column of the table. Mercer has a higher proportion (46.9%) of programs significantly drawing from beyond the home county than any other community college. Atlantic, Union, and Somerset follow closely, with 43.8%, 42.8%, and 41.2%, respectively. At the other extreme, of the 17 colleges having programs to report, Brookdale, Burlington, Ocean, and Passaic indicate no programs drawing 50% or more total enrollment from beyond the home county.

The 14 programs enumerated in Table 1 as reporting 50% or more of their 1984 enrollment from beyond the home county are listed in Table 2, along with selected descriptors. These include the program's 6-digit HEGIS code; title; college; degree; total enrollment for 1982, 1983, and 1984; percentage of the 1984 enrollment from beyond the home county and the contiguous counties; and the percentage of the 1984

Table 2

Selected Descriptors of Programs Drawing 50% or More Total Enrollment, 1984, From Outside Home County of College Offering Program

Program HEGIS #	Title	College	Degree	Total Enrollment			% 1984 from beyond home plus adj. counties	% full-time 1984
				1982	1983	1984		
010101	Career Ag.	Cumberland	AAS	11	5	12	0.0	83.3
010601	Orn. Hort.	Cumberland	AAS	14	26	13	0.0	76.9
040201	Architecture	Mercer	AAS	81	79	99	23.2	70.0
150201	Civil/Const. Eng. Tech.	Union	AAS	32	32	26	7.7	61.5
170102	Dental Hyg.	Essex	AAS	63	59	48	14.6	68.8
170206	Emerg. Med. Tech.	Essex	AAS	43	49	48	14.6	66.7
170501	Animal Sci. Tech.	Camden	AAS	76	76	70	15.7	60.0
170701	Opthal. Sci. Tech.	Camden	AAS	42	58	64	34.4	35.9
170701	Opthal. Sci.	Essex	AAS	59	43	33	6.1	33.3
170818	Resp. Ther.	Atlantic	AAS	40	53	47	0.0	42.6
190503*	Diet. Tech.	Mercer	AAS	--	--	2	0.0	50.0
440401	Pub. Adm.	Morris	AAS	17	11	8	0.0	75.0
470605	Diesel Tech.	Somerset	AAS	4	4	7	0.0	71.4
490102	Aviation Flight Tech.	Mercer	AAS	144	123	119	24.4	67.2

*Program initiated 1984.

enrollment showing full-time status. Interestingly, only one of the 13 distinct programs identified was found to be offered by two or more colleges: Ophthalmic Science Technology is offered by both Camden and Essex. While both programs draw 50% or more from beyond the home county, it should be noted that the program at Camden draws over a third (34.4%) from beyond the combined area of the home county and all adjacent counties, whereas that at Essex draws only 6.1% from a region similarly defined. This indicates that the program at Camden is more of a statewide program than that at Essex. Such observations drawn from enrollment patterns of community college occupational programs illustrate their usefulness in making decisions for designating programs as local, regional, or statewide.

On the basis of such factors, the program HEGIS 490102--Aviation Flight Technology is an example of another one which merits consideration as a statewide program because it draws 24.4% of its total enrollment from beyond the combined area of home and adjacent counties. Likewise, Architecture draws 23.2% of its 1984 enrollment from beyond the home and contiguous counties. None of the other programs listed in Table 2 draws more than 16% beyond such a defined area, and so must be viewed more strictly as regional rather than either statewide or local programs.

The usefulness of the data such as are shown in Table 2 as a first step toward building a base for policy decisions on regionalism is made more graphic when related to the geography of New Jersey. This is done in Figure 1, which shows the distribution by county of programs drawing 50% or more total enrollment in 1984 from outside of

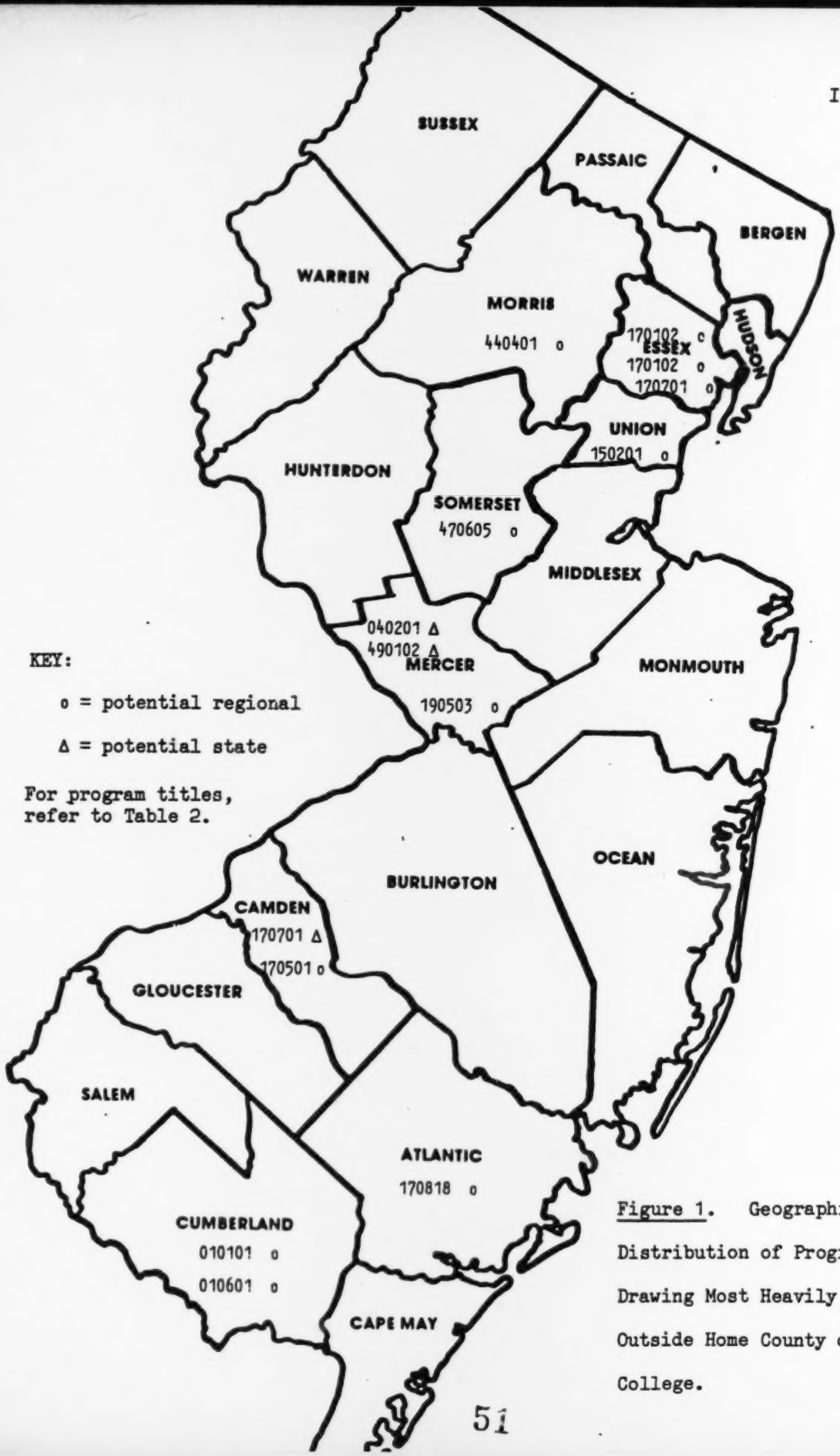

Figure 1. Geographic Distribution of Programs Drawing Most Heavily From Outside Home County of College.

the home county of the college offering the program. Of the 14 programs listed in Table 2, 11 might be designated as "regional" just on this criterion of relatively high demand external to the county, while another three might be designated as "statewide" by using the additional criterion of having greater than 20% of that external demand come from beyond not only the home county, but beyond the contiguous counties as well. The first group of 11 programs is represented on the county map by their HEGIS (Higher Education General Information Survey) code numbers, plus a circle indicating potential regional status. The second group of 3 associate programs are represented by their respective HEGIS code numbers plus a triangle to indicate a possible statewide program. Program titles may be found in Table 2.

Proceeding from the top of the map, potential regional programs as designated in this instance are found in the counties of Morris, Essex, Union, Somerset, Mercer, Camden, Atlantic, and Cumberland. Possible statewide programs are found in only two counties: Mercer with two and Camden with one. This illustration includes only programs found to draw half or more of their enrollees from beyond county boundaries. If the more liberal cutting points of 30% or 25% or more from outside of the home county were used, a number of other potential regional programs could be listed in their county settings. In addition, using the further criterion for a potential statewide program of 20% or more of the student demand external not only to the home county but also to the contiguous counties, six more potential statewide programs could be identified.

The programs which in 1984 drew between 30 and 50% of total enrollment from outside the home county of the college offering the program are identified in Table 3. Mercer again has more of these programs than any other college, having 12 of the 48 in total. Union has eight, and Atlantic and Somerset each has six. No other college has more than three. Brookdale, Burlington, Ocean, and Passaic continue to show concentration of offerings which serve local county clienteles; none of these colleges has programs showing the enrollment pattern of the others in Table 3. Cumberland, which had two programs serving a regional clientele listed in Table 2, has no program shown in Table 3.

The same descriptors used in Table 2 to describe the programs drawing 50% or more from beyond the home county were also determined for those drawing 30 to 50%. The results are shown in Table 4.

For purposes of developing an approach to regionalization, attention is put again predominantly on the last two columns of the table. Looking first at that reporting the percentage of total enrollment from outside the combined home and adjoining county area, several programs can be seen which are providing substantial service beyond that defined region. For example, the Nursing Cooperative program at Mercer in 1984 drew 43.6% from outside the combined home county and adjoining county region. The Accounting program at Somerset drew 30.9% of its total enrollment from beyond such a defined region. The Architecture/Building Construction program at Mercer, the Automotive Technology program at Somerset, and the Education Technology program at Middlesex all drew from approximately 20 to 25%

Table 3

Programs Drawing 30-49.9% of Total Enrollment, 1984, from Outside the Home County of College Offering Program

Program	#	Atlantic	Bergen	Brookdale	Burlington	Camden	Cumberland	Essex	Gloucester	Hudson	Mercer	Middlesex	Morris	Ocean	Passaic	Salem	Somerset	Union
101010	1												X					
010601	1										X							
020401	1										X							
060701	1	X																
070101	1																X	
100104	1										X							
131204	1																X	
131314	1								X									
150101	2							X			X							
150303	1												X					
150501	3										X					X	X	
150803	2					X											X	
170101	1										X							
170102	2					X												X
170103	1																	X
170208	1								X									
170209	1										X							
170210	1		X															
170309	1	X																
170406	1																	X

(continued)

Table 3, continued

Program	#	Atlantic	Bergen	Brookdale	Burlington	Camden	Cumberland	Essex	Gloucester	Hudson	Mercer	Middlesex	Morris	Ocean	Passaic	Salem	Somerset	Union
170506	1																	X
170808	2	X																X
170815	3	X						X										X
170818	1																	X
*181101a	4								X		X						X	X
*181181b	1										X							
200201	1											X						
200401	2	X								X								
310301	1												X					
430201	3	X						X			X							
469999	2															X	X	
490104	1										X							
490106	1										X							
TOTAL	48	6	1	0	0	2	0	3	3	1	12	1	3	0	0	2	6	8

* Mercer reports Nursing and Nursing Coop separately and this is shown as 181101a and 181101b. Thus, there are two nursing entries (X's) for Mercer in this table. The Department lists the two as only one program.

of their enrollment from such an area. The two Culinary Arts programs, one at Atlantic and the other at Hudson, show an interesting contrast in regional and statewide service. That at Atlantic is much more a regional program, drawing only 10.6% of total enrollment from beyond the combined home and adjoining county area. The 31.2% of total enrollment drawn by the Culinary Arts program at Hudson from beyond the combined home and adjoining county area makes it the second most statewide program of those listed in Table 4.

The last column in the table shows the percentage of the total enrollment in the program that the full-time enrollment is of the total enrollment. Contrary to what was expected, there seems to be no discernible consistent relationship between the drawing of enrollment from beyond the home and adjacent counties, and the percentage of total enrollment which is full-time. Note, for example, that the most statewide program, just identified as the Nursing Coop program at Mercer, is reported to have 44.8% of its total enrollment attending full-time. In contrast, the Culinary Arts program at Hudson, which has a strong statewide reach, has almost all of its enrollment (96.1%) in full-time students. At the other end of the continuum of this kind of examination are seen such offerings as the Recreation and Leisure program at Morris, having no reach beyond the combined home and adjoining county area and indicating 70.4% enrollment in full-time students. The Architectural Technology and the Physical Therapy Assistant programs at Essex, the Agricultural Technology program at Morris, and the Nuclear Medicine Technology program at Gloucester are

Table 4

Selected Descriptors of Programs Drawing 30-49.9% of Total Enrollment, 1984, from Outside Home County of College Offering Program

Program HEGIS #	Title	College	Degree	Total Enrollment			% beyond home plus adj. counties	% full-time 1984
				1982	1983	1984		
010101	Agriculture Technology	Morris	AAS	--	--	16	3.4	70.7
010601	Orn. Hort./Land Use Mgt.	Mercer	AAS	71	78	67	10.5	47.8
020401	Plant Sci.	Mercer	AS	25	15	19	5.3	47.4
060701	Hospitality Mgt.	Atlantic	AAS	58	73	120	6.7	48.3
070101	Accounting	Somerset	AAS	227	211	243	30.9	29.2
100104	Telecomm. Tech./Rad./TV	Mercer	AAS	206	224	205	8.8	61.5
131204	Early Child Ed.	Somerset	AAS	54	61	78	5.1	56.4
131314	Health/Phys./Rec. Ed.	Gloucester	AA	42	48	37	13.5	94.6
150101	Arch. Tech.	Essex	AAS	58	69	70	1.4	71.4
150101	Arch./Bld. Const. Tech.	Mercer	AAS	52	48	40	25.0	55.0
150303	Electron. Eng. Tech.	Morris	AAS	227	240	241	2.1	45.2
150501	Heat/Refrig./Air Cond.	Mercer	AAS	23	26	24	0.0	8.3
150501	Air Con. & Refr. Tech.	Salem	AAS	19	20	20	10.0	40.0
150501	A.C./Refr./Heat Tech.	Somerset	AAS	21	18	18	11.1	61.1
150803	Auto Tech. Appren.	Camden	AAS	8	30	31	19.1	58.1
150803	Auto Tech.	Somerset	AAS	17	11	5	20.0	100.0
170101	Dental Asst.	Mercer	AAS	22	23	16	0.0	50.0
170102	Dental Hyg.	Camden	AAS	48	48	45	15.6	75.6
170102	Dental Hyg.	Union	AAS	26	38	60	10.0	75.0
170103	Dental Lab Tech.	Union	AAS	56	66	56	10.7	78.6
170208	Nuc. Med. Tech.	Gloucester	AAS	23	25	25	4.0	84.0
170209	Radiography	Mercer	AAS	50	56	41	19.5	39.0
170210*	Resp. Ther.	Bergen	AAS	39	43	43	4.7	60.5
170309	Med. Lab Tech.	Atlantic	AAS	41	46	39	0.0	51.3

Table 4, continued

Program HEGIS #	Title	College	Degree	Total Enrollment 1982	1983	1984	% beyond home plus adj. counties	% full-time 1984
170406	Human Serv. (Deaf)	Union	AAS	36	35	35	8.6	22.8
170506	Med Rec. Tech.	Union	AAS	24	25	33	0.0	57.6
170808	Occ. Ther. Asst.	Atlantic	AAS	14	25	17	0.0	35.3
170808	Occ. Ther. Asst.	Union	AAS	30	42	46	6.5	65.2
170815	Phys. Ther. Asst.	Atlantic	AAS	71	95	78	2.6	50.0
170815	Phys. Ther. Asst.	Essex	AAS	41	32	39	2.6	84.6
170815	Phys. Ther. Asst.	Union	AAS	34	53	40	2.5	62.5
170818*	Resp. Therapy	Union	AAS	18	43	41	9.8	56.1
181101	Nursing	Gloucester	AAS	328	295	347	4.9	21.9
181101a	Nursing Coop.	Mercer	AAS	280	285	244	5.2	25.0
181181b	Nursing Coop.#	Mercer	AAS/AS	198	253	232	43.6	44.8
181101	Nursing	Somerset	AAS	155	141	129	10.1	57.4
181101	Nursing	Union	AS	466	493	573	5.2	40.8
200201	Educ. Tech.	Middlesex	AAS	239	183	199	20.6	40.0
200401	Culinary Arts	Atlantic	AAS	178	310	379	10.6	50.9
200401	Culinary Arts	Hudson	AAS	--	107	205	31.2	96.1
310301	Rec. & Leisure	Morris	AS	96	81	71	0.0	70.4
430201	Fire Prot. Tech.	Atlantic	AAS	8	11	8	0.0	0.0
430201	Fire & Safety Sci.	Essex	AAS	15	14	3	0.0	33.3
430201	Fire Sci. Tech.	Mercer	AAS	20	15	13	0.0	23.1
469999	Const. Tech.	Salem	AAS	12	10	1	0.0	100.0
469999	Const. Tech.	Somerset	AAS	14	10	13	15.4	84.6
490104	Aviation Mgt.	Mercer	AAS	25	21	15	13.3	46.7
490106	Av. Consum. Rel.	Mercer	AAS	44	53	50	2.0	68.0

*Note that program has same name for both colleges (Bergen and Union), but different HEGIS numbers on both Department listing and colleges' reports.

#Mercer reports Nursing and Nursing Coop separately; Department lists as one.

other illustrations showing high levels of full-time enrollment along with strong regional service.

This last finding suggests that there are other factors in New Jersey which make it possible for part-time students as well as full-time students to travel substantial distances to enroll in the program of their choice. The conclusion suggested, therefore, is that total enrollment will be the main determinant of scope of service of programs, along with the type of transportation facilities and highway patterns that students can utilize to attend the different colleges in the state.

Twenty-two of the 318 programs reported by the colleges had 1984 enrollments showing between 25% and 30% coming from outside the county offering the program. As seen in Table 5, Morris and Somerset each had five programs in this category, and Atlantic had four. A number of the colleges had no programs with this enrollment pattern. The elaborating descriptive information in Table 6 shows that the Data Processing program at Somerset, with a 1984 enrollment of over 500 students, drew 26.5% from beyond the adjacent counties combined with the home county. Two other programs, Business Administration at Mercer and Dietetic Technician at Middlesex, enrolled about 15% from the area beyond the home and adjacent counties. The latter program enrolled only full-time students in 1984.

Interrelating Use of
Enrollment Decision Points

It should be noted that the use of particular porportions of enrollment from local, regional, or statewide geographic areas can be

Table 5

Programs Drawing 25-29.9% of Total Enrollment, 1984, from Outside the Home County of College Offering Program

Program HEGIS #	#	Atlantic	Bergen	Brookdale	Burlington	Camden	Cumberland	Essex	Gloucester	Hudson	Mercer	Middlesex	Morris	Ocean	Passaic	Salem	Somerset	Union
060201	1	X																
060401	1										X							
060701	1											X						
061701	1																X	
070301	1																X	
070601	2												X				X	
079999	1												X					
150303	1	X																
150803	1			X														
150805	1												X					
170309	1					X												
181101	1	X																
200404	1											X						
410101	1		X															
410301	1												X					
430105	1												X					
430107	2	X															X	
480105	2		X														X	
480507	1														X			
TOTAL	22	4	2	1	0	1	0	0	0	0	1	2	5	0	1	0	5	0

Table 6

Selected Descriptors of Programs Drawing 25-29.9% of Total Enrollment, 1984, from Outside Home County of College Offering Program

Program HEGIS #	Title	College	Degree	Total Enrollment			% beyond home plus adj. counties 1984	% full-time 1984
				1982	1983	1984		
060201	Accounting and Finance	Atlantic	AAS	97	126	130	0.0	44.6
060401	Business Administration	Mercer	AS	191	212	212	14.6	46.7
060701	Hotel/Rest./Inst. Mgmt.	Middlesex	AAS	231	230	228	6.6	72.4
061701	Real Estate	Somerset	AAS	9	11	11	0.0	54.5
070301	Data Processing	Somerset	AAS	555	555	529	26.5	32.3
070601	Secretarial Science	Morris	AAS	225	228	204	0.0	62.2
070601	Secretarial Science	Somerset	AAS	118	133	108	2.8	35.2
079999	Business Career Program	Morris	AAS	704	682	708	0.0	68.9
150303	Electronics Technician	Atlantic	AAS	72	101	96	1.0	39.6
150803	Auto. Technician	Brookdale	AAS	229	195	168	6.0	48.2
150805	Mechanical Eng. Tech.	Morris	AAS	174	176	164	0.6	45.7
170309	Lab Tech/Med. Lab Tech.	Camden	AAS	103	93	95	6.3	44.2
181101	Nursing	Atlantic	AS	334	403	363	0.0	41.9
200404	Dietetic Technician	Middlesex	AAS	34	27	20	15.0	100.0
410101	Lab. Tech.	Bergen	AAS	56	46	31	1.8	54.8
410301	Chem. Tech.	Morris	AAS	28	24	32	0.0	56.2
430105	Criminal Justice	Morris	AS	232	235	250	0.4	70.8
430107	Law Enforcement	Atlantic	AS	55	87	92	0.0	44.6
430107	Criminal Justice	Somerset	AA	104	91	109	6.4	65.1
480105	Drafting and Des. Tech.	Bergen	AAS	91	98	100	2.2	50.0
480105	Mech. Draft/Des. Tech.	Somerset	AAS	27	22	21	0.0	61.9
480507	Tool and Die Tech.	Passaic	AAS	12	11	23	8.6	17.4

used as considerations in regionalization decisions either singly or in combinations.

Three enrollment patterns (50% and over, 30-49.9%, and 25-29.9% beyond the home county) have been used for the purposes of illustration in this study. For a regionalization decision pertaining to any one program appearing in any one of the three corresponding exhibits (Tables 2, 4, and 6), a more complete picture of its potential as a regional or statewide offering results by checking for presence in all three tables. For example, Ornamental Horticulture/ Land Use Management drawing at Mercer between 30 and 49.9% beyond the home county (Table 4) also draws 50% or more beyond the home county at Cumberland (see Table 2).

The programs listed in Table 6, with 25.0-25.9% of 1984 enrollment from outside the home county, show no overlap with programs at other colleges showing 50% or more from beyond the home county (Table 2). In Table 6, however, there are several overlaps with programs showing 30.0-49.9% beyond the home county (see Table 4). These include curriculum areas of Hotel/Restaurant/Institutional Management, Electronics Technician, Automotive Technician, Laboratory Technology/Medical Laboratory Technology, and Nursing.

Enrollments in Programs Currently Designated as Regional

Several years ago, the New Jersey Board of Higher Education designated a number of programs to serve as regional offerings. The distribution of total enrollment of the 13 programs so designated as of July 1983 is shown in Table 7. It is evident that 8 of the 13

Table 7

Selected Descriptors of 13 Programs Designated as Regional Programs as of July, 1983, in Order of Date Designated

Program HEGIS #	Title	College	Degree	Date Region-alized	% Full-Time 1984	Total Enrollment*			% Total Enrollment, 1984		
						1982	1983	1984	Home Cty.	Adj. Ct's.	Othe
170406	Human Services (Deaf)	Union	AAS	6/79	22.8	36	35	35	51.4	40.0	8.6
200404	Dietetic Tech.	Middlesex	AAS	5/80	100.0	34	27	20	75.0	10.0	15.0
170506	Medical Records	Camden	AAS	6/80	--	--	--	--	--	--	--
480507	Tool & Die Tech.	Passaic	AAS	7/80	17.4	12	11	23	73.9	17.4	8.6
470605	Diesel Tech.	Salem	AAS	7/80	0.0	4	1	-	--	--	--
480105	Drafting & Design	Bergen	AAS	7/80	50.0	91	98	100	69.0	30.0	1.0
150801	Av. Maint. Tech.	Cumberland	AAS	3/81	40.0	17	12	5	80.0	20.0	0.0
170208	Nuc. Med. Tech.	Gloucester	AAS	4/81	84.0	23	25	25	68.0	28.0	4.0
150610	Weld. Eng. Tech.	Middlesex	AAS	5/81	0.0	5	1	--	--	--	--
100104	Telecomm. Tech.	Mercer	AAS	7/81	61.0	206	224	205	68.3	22.9	8.8
100103	Photography Tech.	Morris	AAS	7/81	72.3	55	65	65	78.5	21.5	--
200401	Culinary Arts	Atlantic	AAS	6/82	50.9	178	310	379	51.7	37.7	10.6
200401	Culimary Arts	Hudson	AAS	7/83	96.1	--	107	205	51.2	17.6	31.2

* Enrollment data provided by the county colleges.

programs are providing significant service beyond the home county if the current policy of considering 25% or more enrollment from outside the home county of the college is used as a criterion. Three of the five that are not doing so are reported to have either no or virtually no enrollment. They are Medical Records at Camden, Diesel Technology at Salem, and Welding Engineering Technology at Middlesex. Two programs, the Aviation Maintenance Technology program at Cumberland and the Photography Technology program at Morris, do not reach the 25% criterion level of outside of home county enrollment. As already noted, the Culinary Arts program at Hudson serves not only the home county and adjoining counties, but draws extensively (31.2%) from beyond that part of the state. This is an illustration of a program with potential for designation as statewide in service.

As indicated in Section I, enrollment figures provided directly by the colleges for this study and those published by the Department of Higher Education do not always match. As an illustration, of the 1984 college figures given for these 13 programs, three were lower than the Department numbers and two were higher, while the rest of the programs showed congruent figures from both sources. As noted earlier, the enrollment figures in this and the rest of the tables are those obtained directly from the colleges for this purpose.

Importance of Trend Data

The usefulness of enrollment trend data in considering regionalization of programs is indicated in Tables 8 and 9. Listed in the first are 28 programs which are reported (by the colleges) to have

Table 8

Programs Failing to Enroll 15 or More Total Enrollment Any of the Years 1982, 1983, 1984, by College Offering the Program

HEGIS #	Title	College	Degree	Total Enrollment*		
				1982	1983	1984
430109	Secur. & Loss Prev. Mgt.	Atlantic	AAS	1	1	1
430201	Fire Prot. Tech.	Atlantic	AAS	8	11	8
061701	Real Est. & Ins.	Burlington	AAS	9	6	5
170209	Radiography	Burlington	AAS	6	7	7
410301	Chem. Tech.	Burlington	AAS	8	4	6
430201	Occ. Sfty/Prot. Tech.	Camden	AAS	8	4	2
010101	Career Agri.	Cumberland	AAS	11	5	12
061101	Indust. Sup. & Mgt.	Cumberland	AAS	8	5	18
070101	Acctg.	Essex	AS	9	6	9
170599	Health Serv. Mgt.	Essex	AAS	8	7	7
410301	Chem. Eng. Tech.	Gloucester	AAS	14	6	10
061401	Marketing	Mercer	AAS	5	5	2
150403	Elec./Mech. Eng. Tech.	Mercer	AAS	3	1	2
190503	Diet. Tech.	Mercer	AAS	--	--	2
150610	Welding Eng. Tech.	Middlesex	AAS	5	1	--
061401	Marketing	Passaic	AAS	4	6	9
080705	Retailing	Passaic	AAS	4	4	10
430201	Fire Science	Passaic	AAS	9	1	7
150403	Elec. Mech. Eng.	Salem	AAS	0	0	11
150701	Ind. Hyg. Tech.	Salem	AAS	0	1	2
469999	Construct. Tech.	Salem	AAS	12	10	1
470605	Diesel Tech.	Salem	AAS	4	1	0
489999	Glass Tech.	Salem	AAS	9	11	7
061701	Real Estate	Somerset	AAS	9	11	11
070201	Banking	Somerset	AAS	4	2	2
410301	Chem. Lab Tech.	Somerset	AAS	2	1	3
469999	Const. Tech.	Somerset	AAS	14	10	13
470605	Diesel Tech.	Somerset	AAS	4	4	7

* Enrollment data provided by the county colleges.

Table 9

Programs Showing Declining Enrollments to 15 or Fewer Total Enrollment in 1984, by College Offering the Program

HEGIS #	Title	College	Degree	Total Enrollment*		
				1982	1983	1984
430201	Fire Prot. Tech.	Bergen	AAS	17	8	2
480101	Drafting and Design Tech.	Burlington	AAS	24	17	14
150801	Aviation Main. Power Pl.	Cumberland	AAS	17	12	5
430201	Fire & Safety Science	Essex	AAS	15	14	3
410101	Lab. Tech.	Mercer	AAS	16	13	9
490104	Aviation Mgt.	Mercer	AAS	25	21	15
150603	Industrial Tech.	Middlesex	AAS	25	22	13
440401	Pub. Adm.	Morris	AAS	17	11	8
150803	Auto Tech.	Somerset	AAS	17	11	5

* Enrollment data provided by the county colleges.

failed to enroll 15 or more total headcount students in any of the years 1982, 1983, or 1984; the second shows programs which have fallen to 15 or fewer total students by 1984. Programs showing this low level of enrollment need to be carefully monitored, for they constitute substantial commitment of local and state resources and raise serious questions of the cost effectiveness of the programs offered. Concentrating location of a given program at a regional location as opposed to having it at several different ones operating at marginal levels of enrollment would seem to serve the interests of both the locality and the state.

An example of possible application of the principle suggested above is found in the HEGIS program 430201--Fire Protection Technology. According to the 1984 Inventory of Degree Programs/ Options Offered by New Jersey Institutions of Higher Education, published by the Department of Higher Education, programs in this speciality leading to the AAS degree are offered at nine county community colleges--Atlantic, Bergen, Camden, Essex, Mercer, Middlesex, Ocean, Passaic, and Union. A related program exists as an option within the BS Criminal Justice program at Jersey City State College (p. 223). From the data in Table 8, it is evident that the Fire Science programs at Atlantic, Camden, and Passaic are operating at relatively low levels of total enrollment. The listing in Table 9 shows that the same program offered by Essex and Bergen has declined to comparably low total enrollments. New combinations of locations of this program, giving one or more colleges a regional designation in offering it and taking into account the usual factors of geographic proximity, county of origin of students, ease of student

travel, and strength of other related programs at the colleges selected would appear to be in order.

We close this section by reemphasizing the point that providing postsecondary educational opportunity to students should be the primary concern in regionalism as it is for community college academic programming in general. The case for regionalism lies chiefly in its promise to make that opportunity available more comprehensively, that is, to widen program choices available to students by making it possible for colleges to offer programs which otherwise would not be justified on sound educational or fiscal considerations. Considerations other than enrollments need to be taken into account, however, and these are discussed in the sections which follow.

III

FOCUSING REGIONALISM ON FUTURE NEEDS

Leaders responsible for setting policies to guide academic programming in community colleges strive constantly to arrive at guidelines that will have longstanding validity and usefulness. Their objective is to facilitate adaptation of curriculum to changes in the society and economy served by the programs offered. Flexibility of academic program offerings is considered a strength of community colleges in serving their localities.

While striving for this objective, however, community college program directors seek also to assure that the programs of their institutions will have as much stability as possible. In order to do this effectively, program planners at both levels typically having responsibility, local and state, attempt to maintain a forward-looking and futuristic view. For these reasons, heavy emphasis is placed on maintaining a close watch on local and state needs. Assessment of the condition of the economy, society, and culture of the locality served is maintained by most community colleges on a regular basis. State agencies are relied upon for information describing state-wide needs.

A similar posture and set of principles are to be adopted and applied when attention is given to regionalization of occupational programs. In this instance, however, the focus has to be on subsections of the state larger than counties and on the state as a totality rather than a local jurisdiction. And because there is no standard or well-established structure and process for dealing with regional needs and related demands for programs and services, the task

of keeping the focus of regionalism on future needs becomes more complicated and difficult. Nonetheless, there are compelling reasons in New Jersey why the task should be tackled and policies adopted to assure its more successful accomplishment.

New Jersey in Transition and Its Commitment to High-Technology Industry

Among the states of the nation, New Jersey enjoys a high reputation as a leader in several important ways. The beginning paragraph of the Report of the Governor's Commission on Science and Technology states:

> New Jersey is a center of technological innovation. It has more scientists and engineers per capita than any other state. Industrial expenditures for research and development in fields such as pharmaceuticals and electronics are the highest in the nation. The state's higher education institutions possess a multitude of strengths reinforcing our industrial technological advantages. (p. 2)

But the fact that New Jersey can ill afford to rest on the accomplishments of the past is also well recognized in the report. Indeed, the Commission emphasizes throughout the document that the state must look to a transition, building on the past strengths which have helped to build its economy and place of leadership in the nation, but also looking to new ways that these can grow. Two themes that are stressed in the report are particularly relevant to the current interest in strengthening the policy framework for regionalization of county community college occupational programs. One is that New Jersey, in setting a new course for its economic development, needs to recognize the importance of relating its economy

to changes occurring in the larger national and international scene. Those changes, it is emphasized, are creating "the information economy," that is, one in which growth is based on processing and communication of information; "the open economy," that is, one depending more on international trade; and "the entrepreneurial economy," that is, one depending heavily on the birth and expansion of new enterprises. The other is that the revitalized New Jersey economy will need to place a heavy emphasis on its ability to retain and attract new industry that is based on high technology and, furthermore, an essential element in being able to do so is the state's capacity to provide high-quality education and training in such fields. "The evolution and growth of technology-based industry," the Commission says, "is a complex process shaped by numerous factors. . . . Expanding economic opportunities in New Jersey requires a cooperative effort that harnesses the resources of the business community, public and private educational institutions, and State government" (p. 4). There follow closely two other observations that seem particularly relevant to the current project on regionalism. Following recognition that, "A successful science and technology strategy also requires a workforce with a strong educational foundation." (p. 6), the Commission offers as one conclusion from its observations:

> The availability of technically trained workers also is a major factor in the location decisions of technology-based firms. Yet vocationally oriented technical training lacks a systematic focus in New Jersey. Institutions have a mixed record of responsiveness to industries' needs, limited market information is available, and there is often duplication of programs. (p. 7)

In reexamining its policies on regionalism as applied to the county community colleges, New Jersey has timely opportunity to address these issues and to set the stage for advancements that will touch not only this sector of the state's postsecondary educational system, but others that are involved in offering occupational programs, as well.

Contrasting Views of Impact of High Technology on Employment Opportunity

There can be no denying that the bases for the economy of New Jersey and of the United States in general, of the future, will be highly dependent upon our capacity to keep pace in high-technology industries. To go from that generalization to another often being made in a sweeping fashion, namely, that the impact of high-technology industrial advancement is going to have far-reaching impact on employment opportunities and the general structure of the American labor force, is a dangerous step and one open to increasing challenge. An excellent summary of the facts bearing on this debate and the arguments involved in it were presented by Edgerton (1984) at a conference looking at the future of the liberal arts college in the nation. The gist of his presentation, as applied to the changes evident in the economy and the impact of high-technology industrial development on employment, is found in four charts which are included as Appendix D of this report.

Setting the stage for the larger conclusions he was to draw, Edgerton first noted that there had been a steady increase in "college level" jobs from 1965 to 1985 and, further, that this was expected to

continue to be the case through 1995. But then he asked what kind of student was needed to fill employment requirements of the future. Referring to the first three of the four charts shown in Appendix D, he noted that the general view is that the economy of the future needs " . . . above all, technicians and specialists, computer scientists and so on" (p. 23). But then he suggested that such a conclusion failed to carry the analysis far enough; he said:

> As "Twenty Fastest Growing Occupations" shows, it's true that the rate of growth is very important in the high-technology occupations. We often hear about this from the press. But what we hear less often is that the growth in these occupations derives from a very small base. The list of "Twenty Occupations with Largest Job Growth" is very different. There's very little overlap between the two lists. Only when you extend the list of "Largest Job Growth" to the second twenty do you get some noticeable overlap, and it still isn't all that much. (p. 23)

Edgerton then focused attention on the last of the four charts taken from his presentation for inclusion in the Appendix of this report, that referring to "High-Technology Jobs." Depending on which of the three criteria is used for projecting the proportion of technology-oriented workers to the average for all of industry, from the present through 1995, he concluded that it might be possible to classify between 3 to 4% and 16 to 17% of new jobs as high-technology jobs; the definition used by the Labor Department, described as a combination approach, suggests a middle ground of from 8 to 9%. And Edgerton concludes, "But the reality is that out of 23.4 to 28.6 million new jobs, in the next 10-12-15 year-period, a million to 4.6 million would be in high-tech industries, which I think

is less than most people get a sense of when they read the daily press" (p. 23).

The point that we wish to make in including this commentary in our report is that close attention needs to be given in any policy framework on regionalism to the special problems of programming high-technology offerings. These programs are generating special problems because they are, generally speaking, more costly to operate than the average; because they are viewed as "glamour offerings" and so considered good targets of new program expansion by institutions wishing to be seen as alert and active in academic programming; and because, as indicated in the discussion by Edgerton, there is not a general consensus that these kinds of offerings need to be as widely established as popularly believed in order to meet the needs of the labor force of tomorrow. Any program that is high cost and not likely to be justified in terms of enrollment generated by an individual community college sponsorship area is a candidate for consideration as regional or statewide in service; and the number of such programs should be made a matter for control through a regionalism policy viewing them together.

Problems with Forecasting New Career Fields

Academic program planners in all kinds of colleges and universities are generally agreed that a most difficult part of their task is to project the future needs of the economy for particular classifications of workers. They concede that such projections cannot be done at the local institutional level except in the narrowest of

approaches, for example, surveying officials in business and industry to determine demand for new employees--secretaries, laboratory technicians, legal assistants, construction cost estimators, etc. However, forecasting through statistical and computer modeling is also being increasingly attempted to assist academic planners in dealing at a more localized level with the difficult task of advanced programming and further development and use of such models should be encouraged. Gaylord (1980), for example, developed an operations research model for statewide postsecondary education planning in Florida. It is described as a "prototype linear planning model" developed to assist the state postsecondary education planners in "maximizing selected systemwide policy objectives" (emphasis added). The focus of the model was admitted to be not to predict the future, but rather to facilitate anticipation of many different futures and preparation of alternative strategies as conditions internal and external to the Florida system change. Dependence of the model on accurate and valid measures of those conditions was emphasized in the report on the model's development and trial.

At the same time, it is usually felt that the type of gross projections that come from state and national centers where statistics on the labor force are compiled and projected are of little use because they do not translate easily to the specifics of understandings, skills, and work behaviors considered to be essential for business and industry employment requirements; such specifics must be known before academic professionals can develop appropriate course and curriculum content.

This is not to say that none of the information currently available is of any use. Quite the contrary; steady attention to the changing conditions of the labor force and production of guides for program planning such as the report Planning Information for Vocational Education, produced regularly by the New York State Department of Labor, are essential to effective policy formulation and program decisions. Efforts of the consultant team to acquire similar projections of the labor force in New Jersey were not successful and inquiries addressed to the officials at state and institutional levels indicated that no comparable up-to-date compilation was available.

Even when such compilations are available, the differing views about the future impact of high technology on jobs and employment opportunity described above need to be remembered. The differences of view are not surprising when the difficulty of the task of forecasting economic trends and related shifts in manpower requirements is recognized. The "state of the art" in this endeavor is far from an exact science.

That is not to say that forecasting cannot provide useful information for estimating macro trends within the economies of a region, or a nation, or even larger geographic areas. Extensive bibliographies and sophisticated computer programs attest to the extent of this professional practice. Even at that level, however, those responsible for using the results of such forecasts may place little credence in their estimates. This was a view expressed, for example, at a recent international conference on continuing education with participants from a number of OECD (Organization for Economic

Cooperation and Development) countries. Nevertheless, forecasting has its place in predicting the broad direction of change, even if not its specific application in terms of the need for a particular academic program in a particular institution. For example, the use of demographic data helped to give early warning of the coming demand for school teachers, a prediction which seemed farfetched in a period marked by oversupply of teachers in much of the country. Whether a particular school district will feel this pinch, and whether a specific college should attempt to address this manpower need through academic programming, however, are not questions for which forecasting in the more technical sense would seem to be appropriate.

A possible problem with forecasting for academic programming is the set of variables used in the model, and the extent to which the set integrates attention not only to employment demand locally, regionally, and possibly nationally, but also supply of employees; supply of pertinent academic programs (including duplication and proliferation as well as undersupply); student demand as well as capability for pursuing a particular career line; rate of predicted change within a technology, including potential for obsolescence; cost factors; transportation factors; and so on. In other words, the model must address the reality which is faced by the college or system administrator trying to make a decision about programming direction.

One possible approach which may be used in lieu of forecasting <u>per se</u> for decisions about academic programming is a decision support system, which can be as simple or complex as the decisions to be made indicate as necessary. Current literature is full of references to

decision support systems and decision support tools, for example, the Lotus 1-2-3 microcomputer program, the NACUBO (National Association of College and University Business Officers) framework for resource utilization; demographic data; and so on. A decision support system generally includes a decision maker or body facing a relatively unstructured problem, a data base management system, a model base management system, and a dialog management system. The types of variables mentioned above can be built into such a system, in addition to provision for seeing the effect of relative value placed on goals as an important input to the choice of alternative decisions.

In summary, although forecasting may be very useful for predicting broad patterns of change, a more integrated approach to dealing with the real-life variables which must be considered in local programming decisions limits its utility for establishing specific degree programs at specific colleges. Any process for the development of new programs, particularly those in the high technology majors, needs as a minimum to integrate information about potential employment demand, institutional and state system capacity to respond, but as well--student interest in the potential program and capacity to perform at an acceptable level in that type of academic endeavor.

Implications for Regionalism

The general conclusion we draw from the current picture describing the need to keep regionalism focused on the future when materials projecting the future are so nebulous or lacking, especially when regional needs are to be determined, is that policies should

stress the process by which the desired outcomes of sound needs determination and high program flexibility as such knowledge unfolds can be achieved rather than the application of longer-standing and tested knowledge to program decisions. As suggested above, a policy framework which calls for a recognized and accepted decision support system which will allow for systematic input of information and action by accepted participants in the decision-making chain, in our judgment, is a better one to establish because of its greater assurance of flexibility and capacity to shift actual program decisions as new economic, social, cultural, or political conditions change.

The same conclusion apparently is becoming the basis for action among community college program planners throughout the country. Increasingly they are creating linking mechanisms whereby institutions are acting less as isolated entities and more as parts of collectives of organizations having mutually supporting goals and programs. An excellent illustration of such collective action intended to reduce the riddle of projecting high-technology industrial development and related program needs is found in the Emerging Technologies Consortium. Its genesis and development were reported recently as follows:

> The Emerging Technologies Consortium grew out of discussions in 1982 among the presidents of Michigan's four largest community colleges. Their goal was to pool their educational and training resources and cooperatively seek solutions to Michigan's prevailing economic crisis. They developed a plan to establish a common and fresh base of information regarding Michigan's emerging technologies.
>
> Michigan's Department of Education and Legislature encouraged this type of cooperative

> effort among higher education institutions by offering economic development grant funding to colleges that presented practical proposals. As a result of the funding awarded to the Lansing-Macomb-Oakland-Wayne consortium, valuable new information has been developed from interviews in the business and industrial sectors, and each of the member colleges has refocused and improved its efforts to network with business and industry.
>
> The Emerging Technologies Consortium represents a cooperative model that can be used by community colleges across the country to identify emerging technological developments and establish or strengthen existing training programs to promote economic development and meet the new needs of leading businesses and industries. (Ammon & Robertson, 1985)

Several ingredients seem to be essential requirements if regionalism is to have a successful focus on the future. They are a spirit of collective action, with involvement of multiple parties along with the local community colleges; leadership and endorsement at the state level; and financial incentive. Policy initiatives are needed in New Jersey to cover each of the items listed.

IV

PARAMETERS FOR DECIDING SCOPE OF REGIONAL SERVICE

Throughout this report, we have alluded to the need to have a clear-cut definition of the scope of regionalization of county college occupational programs. A policy stance that sets forth liberal criteria for including programs can undermine the advantages of regionalization; one that uses too rigid criteria would fail to optimize its use.

Thus far, our discussion has centered on the factor of enrollments that occupational programs attract because we believe that this is the primary consideration on which basis regionalism should proceed. We pointed out that use of an enrollment proportion of 25, 30, or 50% or more students from outside the home county of the college can be points for determining eligibility of a program for designation as regional in service; similar "cut off" proportions of enrollments from outside the combined home county plus adjacent contiguous counties can be used to identify potential statewide service programs.

What the stipulated proportions for such designations in operational terms should be, however, is a policy decision that leadership of community colleges in New Jersey at local and state levels need to make. The range of possible programs for designation as regional in service, as brought out in Section II, is from 14 (at the 50% cut point) through 47 (at the 30% point) to 22 (if the cut point is extended to 25% enrollment from outside the home county). In

our view, the regionalism policy should stress service to students (reflected in enrollment patterns), but decision on the cut point for eligibility for regional designation needs also to take into account other factors.

Factors Needing Consideration

Besides the basic matter of enrollment generated, key factors on which basis consideration of a program for regional designation rests are costs of operation, relationship to institutional development, and location. Within the scope of resources available for this project, only preliminary development of indications of the way those two factors can be woven into the regionalism policy was possible. An approach to considering costs of program operations will be presented in the next section, but a more intensive examination of this factor is needed.

Policy guidelines for regionalization need also to consider the interrelationships of the program and its institutional setting. The threshold determination necessary is the extent to which designating a program offered at a particular college as regional in service will serve both the objectives of regionalism as viewed from regional and state-level interests and of the individual college. Thus, the policy can be structured to favor such program designation at a college starting a new programmatic thrust because it is consistent with changes in the economy of the college's service area. It can also be structured to encourage such designation at a college with justification by the strength of its existing programs and so its

ability to bring to the program already available strengths of faculty, library, and other needed resources.

We emphasize that these two policy directions, with respect to the factor of relationship to institutional development, ought not to be viewed as conflicting, only that both should be covered in the regionalism policy framework. The policy may be structured to stress one or the other more, depending on the impact that leadership at state and local levels wants regionalization to have on institutional development viewed from both local and state-level perspectives.

We emphasize further, too, that in a policy of encouraging designation of regional programs at institutions starting a new programmatic thrust, the policy must also guarantee reasonable capacity by the college to launch the program and to sustain it at acceptable levels of quality. To do this, the policy for designation at such locations should also cover the question of how the college will meet special new costs, acquire needed faculty, and the like. Special financial state-level incentives also should be considered.

Policy guidelines on location of a program, when two or more in the same occupational speciality are eligible on the basis of enrollment but may not be eligible on the basis of cost or relationship to institutional development, need to consider a number of additional factors. These include such matters as distribution within the state, access in terms of transportation, and conformity to usual views of the state of New Jersey as a complex of sub-sections or regions. An example of the way distribution of location over the state can be taken into account was given in Section III in the

discussion of programs having highest proportions of students coming from outside the home county. A brief look at New Jersey from the special perspective of this project follows below.

New Jersey From a Regional Perspective

Regionalism as a basis for planning and developing public services in New Jersey is not new. Pronouncements of support of regional planning in advancing economic development, health, and related social services are prevalent. As was noted at the start of this report, several high-level official statements calling for greater use of regional planning in postsecondary education are on the record. On the basis of the attention given to regionalism in New Jersey, it appears that the state can be viewed in roughly from four to six regional subgroups, depending on the refinement of factors considered in making the division. The Health Professions Education Master Plan (1973) first projected four regions and then considered five. If only four are to be considered, the northern tier counties of Hudson, Bergen, Passaic, and Sussex form one section; the next more southerly counties of Union, Essex, Morris, and Warren form a second tier; a much larger geographic area falls in a third tier encompassing Ocean, Monmouth, Mercer, Middlesex, Somerset, and Hunterdon counties; and the southernmost portion of the state makes up a fourth area which includes Burlington, Camden, Atlantic, Gloucester, Salem, Cumberland, and Cape May. A more refined set of subdivisions was later suggested, breaking Hudson county out from the others in the northern tier described above, combining Passaic and Bergen into a single area, and

combining Essex, Morris, Sussex, Union, and Warren into still another separate region in the northern part of the state. That would make five subdivisions of the state. The sixth would result from a breakout of counties in the southern part of the state which seem to be developing as part of the metropolitan growth around the cities of Philadelphia and Camden.

Information obtained by telephone interview with Executive Director Edward Cohen, New Jersey Commission on Science and Technology, indicates that attention to regional planning is strong in southern New Jersey. Similar interviews with college presidents in the area corraborate that view. Over a dozen collegiate institutions, including the county community colleges in the southern part of the state, Rutgers University, and New Jersey Institute of Technology, are reported to have organized the Southern New Jersey Technology Consortium. In light of recommendations advanced in this report, a significant feature of the board of directors of the Consortium is that a majority of the members are business and industry representatives. The mission of the Consortium is to enhance economic development and better higher educational services to businesses and industries located in the region.

Implications for a Policy on Regionalism

The fact cannot be ignored that New Jersey manifests rather striking differences in different sections of the state and so suggests that the factor of geography should also be strongly considered in a policy on regionalism. The issue this generates when

the consultants' overall recommendation of approach to regionalism is kept in mind is how consideration of services to students (enrollment patterns) and geographic considerations can be reconciled.

The principle that the consultants recommend be followed in developing a policy for regionalization of the county community college occupational programs is that as much as possible, accommodation be made with the approaches to regional planning that have been advanced by economic development, health and related services, transportation planning, and the like. However, a further principle is recommended and should be given precedence: It is that flexibility in program planning for regional and statewide service is more important than accommodation to fixed lines defining geographic areas and especially local governmental jurisdictions. Put another way, the scope of potential services of a program designated as regional in service should define the boundaries of service expected rather than a predetermined geographic region's defining the reach of service that the program is to provide.

On the basis of this logic, the consultants suggest that regionalization of selected occupational programs in New Jersey proceed by considering regional needs and combinations of colleges putting the combinations together differently for different programs. Thus, for example, a program at Essex could be designated a regional program to serve the northeastern group of counties; a different program at Hudson or Bergen could provide a similar service; and so on. Similarly, colleges in the middle and southern parts of the state could have regional programs designated to serve all or parts of defined regions

with the definition of the regions being different for different programs.

A knotty question is always raised when a new program is proposed to serve a local constituency (and is so justified) when a nearby college is offering the same program which, furthermore, has been designated a regional program. A guideline the consultants suggest is that the college proposing the new program on a local basis be required to show an enrollment potential from its locality (home county) of x plus y, where x equals the number of students from the locality attending at the current regional location of the program, and y equals a specified number (critical mass) of full-time equivalent students needed at the newly proposed location in order to justify the program if it were standing alone. The logic for the requirement is that the state has already made a commitment to help support the designated regional program, including x in the standard formula. In fact, we propose there be a further increment in the support New Jersey provides for its regional programs. Therefore, the proposing college ought to be able to show more than the minimal justification for the program that would prevail if no potential competition with an existing designated regional program was present. Several examples of programs can be drawn that seem to fit the requirement proposed.

As already described, the essential steps necessary to reach decisions about where to locate a designated regional program and the range of its expected service start with analysis of enrollment potential, in the case of proposed programs, and enrollment patterns,

in the case of existing programs. Patterns of enrollment trends and geographic origins of students such as were described in Tables 1-6 indicate the process involved. Such enrollment patterns are known to reflect other factors that are important but are difficult to describe on a factual basis; for example, public and student perceptions of the quality of the program offered, institutional climate conditioning the adjustment of students and their success in a program at an institution, subtle matters of transportation facilities, and the like.

Subsequent steps in the designation of regional programs should take into account important other factors, such as related academic strengths of the institution, costs which would be generated as a result of placing a program at one institution as opposed to another, and proximity of parallel services provided by other sectors of postsecondary education in New Jersey. In our view, these considerations should precede consideration of the geographic factor, although this should also be taken into account as an important final consideration.

V

AN APPROACH TO CONSIDERING PROGRAM COSTS

At the start of this project, it was thought that it might be possible to carry the examination of programs providing regional or statewide services beyond that looking at enrollments to a parallel examination of program costs. It was soon discovered, however, that the fiscal procedures found in New Jersey are difficult to use when complete academic programs leading to degrees in specific fields of specialization are the units of analysis. Early in the designing of the project, the consultants' exchanges of communications with the leadership of the business officers of New Jersey county community colleges made clear that funding is based firmly on a formula using credit-hour enrollments and the differential classification of groups of specific courses as opposed to programs. The procedure uses six levels for course classification. Group I--General Liberal Arts Courses--is considered the basic level and assigned a classification value of 1.0. The other levels are related to this base classification and are given incremental values which are then translated to increases in funding because of the greater weights they carry in the funding formula. Group II--Liberal Arts and Science Laboratory Courses, and Group III--Light Technology Courses, are assigned a factor of 1.25. Group IV--Allied Health and Heavy Technology Courses, carries a factor of 2.0; Group V--Remedial Courses, a factor of 1.25; and Group VI--Non-Credit Courses, a factor of .75. Each college's credit-hour and equivalent credit-hour

enrollments in each of the classifications of courses is accounted for, certified, and audited in the management of fiscal operations.

The procedure is well established and seems to be functioning well for the purposes for which it was established, but quite obviously has serious limitations when the unit of analysis is an entire academic degree program as opposed to a particular course. Conceivably, it would be possible to gather the available data on costs and courses, aggregate those for courses making up a degree program, and thus arrive at a program cost. Because there is wide variation, however, in the aggregations of courses which make up degree programs, that procedure would at best lead only to an approximation of a given degree program's cost.

Lacking both time and resources necessary to launch that kind of cost analysis of the programs identified as providing regional and state services, the consultants used a different approach, which follows essentially the same logic. It is presented with two purposes in mind. The first is to emphasize that a thorough foundation for a sound policy and effective implementation for regionalization of programs has to consider the matter of costs. The second was to suggest an approach that can be used as a beginning effort to determine program costs and thereby to provide cost data that are now needed but are not available.

The approach that the consultants used resulted in the tabulations shown in Table 10. Listed in the table first are the 13 programs in 14 locations which draw most heavily from beyond the home county (see Table 2), and then the 48 programs identified in the next

Table 10

Programs Relevant to Regionalism Policies by College Offering Program and by Estimated Cost Level

HEGIS #	Title	College	Estimated Cost Level
010101	Career Ag.	Cumberland	3
010601	Orn. Hort.	Cumberland	3
040201	Arch.	Mercer	3
050201	Civil Const.	Union	3
170102	Dental Hyg.	Essex	4
170206	Emer. Med. Tech.	Essex	4
170501	Animal Sci.	Camden	4
170701	Opth. Sci.	Camden	4
170701	Opth. Sci.	Essex	4
170818	Resp. Ther.	Atlantic	4
190503	Diet. Tech.	Mercer	3
440401	Pub. Adm.	Morris	1
470605	Diesel Tech.	Somerset	4
490102	Av. Flight Tech.	Mercer	4
010101	Agriculture Technology	Morris	3
010601	Orn. Hort./Land Use	Mercer	3
020401	Plant Sci.	Mercer	3
060701	Hospitality Mgt.	Atlantic	2
070101	Accounting	Somerset	2
100104	Telecom. Tech./Rad./TV	Mercer	2
131204	Early Child Ed.	Somerset	2
131314	Health/Phy./Rec. Ed.	Gloucester	2
150101	Arch Tech.	Essex	3
150101	Arch./Bldg. Cons. Tech.	Mercer	3
150303	Electron. Eng. Tech.	Morris	3
150501	Heat./Refrig./Air Con.	Mercer	4
150501	Air Con. & Refrig.	Salem	4
150501	Air Con./Refrig./Heat	Somerset	4
150803	Auto Tech. Appren.	Camden	4

(continued)

Table 8, continued

HEGIS #	Title	College	Estimated Cost Level
150803	Auto Tech.	Somerset	4
170101	Dental Asstg.	Mercer	4
170102	Dental Hyg.	Camden	4
170102	Dental Hyg.	Union	4
170103	Dental Lab Tech.	Union	4
170208	Nuclear Med. Tech.	Gloucester	4
170209	Radiography	Mercer	4
170210	Resp. Ther.	Bergen	4
170309	Med. Lab. Tech.	Atlantic	4
170406	Human Services (Deaf)	Union	2
170506	Med Rec. Tech.	Union	3
170808	Occ. Ther. Asst.	Atlantic	4
170808	Occ. Ther. Asst.	Union	4
170815	Phy. Ther. Asst.	Atlantic	4
170815	Phy. Ther. Asst.	Essex	4
170815	Phy. Ther. Asst.	Union	4
170818	Resp. Ther.	Union	4
181101	Nursing	Gloucester	4
181101	Nursing	Mercer	4
181101	Nursing (Coop)	Mercer	3
181101	Nursing	Somerset	4
181101	Nursing	Union	4
200201	Ed. Tech.	Middlesex	3
200401	Cul. Arts	Atlantic	3
200401	Cul. Arts	Hudson	3
310301	Rec. & Leisure	Morris	2
430201	Fire Prot. Tech.	Atlantic	3
430201	Fire & Safety Sci.	Essex	3
430201	Fire Sci. Tech.	Mercer	3
469999	Const. Tech.	Salem	3
469999	Const. Tech.	Somerset	3
490104	Aviation Mgt.	Mercer	2
490106	Aviation Cons. Rel.	Mercer	4

classification of regional service (see Table 4). Under the column labeled "Cost Level" is shown a classification 1 through 4. The purpose of this figure is to suggest a cost classification scheme for academic programs comparable to that already now in use that is applied to courses. To arrive at the cost level shown in the table for each program, the consultants drew on their own knowledge and experience with academic programs in community colleges. On the basis of that judgment and using the descriptive materials published by the Department of Higher Education in New Jersey for classifying specific courses into different classifications of costs, the consultants assigned a cost level to each of the programs identified.

The point of this presentation is to suggest that should New Jersey adopt a policy and act to provide fiscal incentives to colleges to provide regional and statewide programs, the policy should recognize the differential costs of the programs provided. Higher cost programs should be aided by the state at increments above lower cost programs in the way that higher cost courses are subsidized by the state at a higher level than those that can be operated at lower expense.

VI

TWO TARGETS IN POLICY REFINEMENT: DATA ACQUISITION AND DECISION-MAKING

A strong policy on regionalism needs to cover more than guidelines to operating decisions when information on which to base the decisions is available. It must speak also to ways that the gathering of needed data can be assured and to the ways that those interested in and affected by decisions on regionalization will be assured a voice in those decisions.

Data Acquisition

In order to formulate a sound policy framework for regionalization of county college occupational programs, it is important that a firm procedure be established for gathering essential data. The consultants must report that at present only minimal data are available for the purpose. It is hoped that the experience that the Office of Community College Programs in the Department of Higher Education and the Association of Community College Presidents, as well as the leadership of the individual colleges, have acquired through this project will contribute to quick advances in data gathering and analysis as further steps toward regionalization are taken.

The role of the Office of Community College Programs and the Association of Presidents in this regard is critical. As a result of the work completed in conducting this project, a start toward a data base which describes the enrollment patterns of occupational programs

has been made. It is important that it be maintained, refined, and expanded, if success in regionalism is to result.

It was hoped that the project would make a beginning in another important requirement of data essential to regionalism. It was that information about programs offered, enrollments, and other important information about them provided by other sectors of postsecondary education in New Jersey would also be started. The fact to be reported, however, is that such data are simply not available. The nearest thing to them are essentially directory listings of programs by HEGIS number and title offered by the different types of institutions in the state. This is a start toward what is needed, but falls far short of what is required in terms of detail, longitudinal time-line averages, continuity, and specificity. Data that are grossly aggregated, statewide in coverage, and descriptive of programs broadly defined do not lend themselves well to regional planning and decision making. A striking example which came out of this project was the fact that colleges could report rather easily the gross numbers of students coming from particular counties, but often found it quite difficult to link students and their counties of origin with their enrollment in specific programs of study. This is a matter of database design, making sure that data elements needed for a particular kind of decision (such as regional status for a program) interrelated easily, without new data gathering specific to that decision.

This is not to be viewed as a criticism of either the Department of Higher Education or the colleges. It is simply an indication that

awareness of the advantages of regional planning and progress toward its development have not yet progressed to a point where it is generally recognized that sound policy for regionalism and its implementation are needed. The call for this project and report shows that a greater recognition of the need is now evident. It can be expected, therefore, that concomitant improvements in database design, data gathering, reporting, and analysis will follow.

Decision Making

Persons actively engaged in the study and practice of regionalism in higher education stress that a problem encountered in implementing the concept comes from the fact that there is no voice in the typical structure for policy formulation and decision making that focuses on regional as opposed to local and state interests. We propose building on existing structures and practices to speak to this issue in New Jersey.

Building on the principle of conservation of resources, it may be possible to utilize in an advisory capacity one or more existing organizational structures in order to further occupational program regionalization. For example, it is our understanding that a statewide Curriculum Coordinating Committee dating back to the 1970s still functions in this capacity, with representatives from the several county colleges. To make accessible the viewpoints of the state's educational "consumers," as well as to temper the natural identification of the college representatives with their own institution's best interest, it might be well to consider augmenting

that and any such group with representation from the citizenry beyond the college community. This could use a cross over of members of a citizens advisory council attached to each program.

To further the actual implementation of a regional approach to occupational program location in New Jersey, the consultants recommend consideration of an inservice professional development orientation for appropriate individuals at both the college and the state office level. Some agenda topics could include data base design for obtaining information necessary to regionalization decisions; data gathering, analysis, and presentation of information for such decisions; mechanisms for monitoring the strength of all existing programs; the process of identifying, designating, reviewing, and implementing regional occupational programs; and procedures for insuring the inclusion of data relative to offerings in other New Jersey postsecondary institutions, and the viewpoints of local colleges, state offices, and the state's interested citizenry.

Finally, here we wish to emphasize that policies and practices established to implement regionalism of county college occupational programs need to be carefully distinguished from those that guide state-level program review. Regionalism should not become a vehicle for additional program review. It is believed that existing policies and procedures can be used to identify programs meriting attention for possible designation as regional or state programs. Those programs would require the details of descriptions we mentioned above; others would not.

VII

RECOMMENDED ACTION TO STRENGTHEN REGIONALISM

The consultant team concludes this report by distilling from the discussion presented in earlier sections a number of guiding principles that we believe should be observed in New Jersey as it moves to strengthen policies concerning regionalization of county college occupational programs. The consultants know that to some extent the principles identified are already evident in the approach to regionalism that was begun more than a decade ago; others, however, are not yet observed to any degree.

A first action we recommend to the leadership at local and state levels is that it examine the current policy framework on regionalism against the list of principles we provide below. Given concurrence on adherence to them, substantial progress toward a stronger use of regionalism in programming county community college occupational offerings can be expected.

Guiding Principles and Elaboration

Specifically, the consultant team recommends in New Jersey acceptance of 14 principles on which the regionalism policy should be structured. They flow from the discussion presented in earlier sections of this report and in our collective judgement represent the direction that new policy initiatives in New Jersey concerning regionalization of county occupational programs should take. Because a policy on regionalization of such programs already exists in the state, the principles can be used as a framework for review of the

current framework for regionalism, but this is not the purpose for which we advance them--not to evaluate the present, but to help shape the future policy directions regionalism should take. The principles that we advocate will first be stated topically, and then elaborated in the discussion which follows. Regionalism policies should stress:

Principle 1 - Protect priority given to localized service

Principle 2 - Assure that decisions about regionalization of programs are made on a multi-factor basis

Principle 3 - Indicate the priority of factors used in making decisions, and of sensitivity to interrelationships among the factors utilized.

Principle 4 - Emphasize the need for and importance of incentives

Principle 5 - Maintain flexibility in use of incentives

Principle 6 - Encourage the design and maintenance of an appropriate database to provide consistent integrated information requisite to making regionalization decisions

Principle 7 - Assure a "citizens' voice" in regionalism and regionalization actions

Principle 8 - Encourage multi-sector participation and inter-sector communication

Principle 9 - Assure periodic review of (a) policy elements and (b) regionalization decisions

Principle 10 - Recognize proper relationships of regionalism to program review and coordination

Principle 11 - Encourage periodic systematic review of job opportunities in the region and state for graduates of existing and proposed regional programs

Principle 12 - Emphasize the importance of maintaining a strategic stance

Principle 13 - Increase identity and legitimacy of regionalism and regionalization

Principle 14 - Encourage and assist leadership development at all levels (state, regional, local) dedicated to regionalism

Principle 1 - Protect priority given to localized service

Programs that are justified on the basis of demand in a local county area should continue to be determined by the county community colleges on their own authority. Existing procedures for review by the Department of Higher Education of all existing programs and requests for new ones, however, should be maintained. This principle is axiomatic when community college academic programming takes place. Regionalization of occupational programs should compliment and supplement the effects of community colleges serving their local constituencies. It should make possible attention to broader subsections of the state and the entire state without de-emphasizing attention and effective responses to local needs for community college programs.

Principle 2 - Assure that decisions about regionalization of programs are made on a multi-factor basis

Proposals for designation of an existing or a new offering as a regional or state program should be reviewed against a number of additional criteria which are different from those applied to programs justified by local demand. These additional criteria are of two types: general policies, and operational procedures designed to determine a program's potential for regionalization.

General policies. An important criterion for regionalization of a program is the demonstration of need to draw on the population of more than a single county in order to generate an enrollment large enough to make the program academically sound and economically feasible. A second policy criterion is the demonstrated need for persons with

specialized training for the development of an area definable by features other than governmental jurisdictional lines, and covering parts of two or more counties (e.g., an SMSA - standard metropolitan statistical area). Designating regional programs in different occupational fields to different county colleges in such an area could obviate some competition and duplication.

Another major criterion for designation of a program as regional is the extent to which it now serves students residing beyond both the home county and the contiguous ring of counties. For some HEGIS code occupational programs, this criterion may be met at the specified enrollment level in several of the state's community colleges. In such a case, demonstrated need may justify the establishment of duplicate regional programs in multiple locations. Because of the wider geographic area by definition served by a statewide program, however, it would be unusual to find a specific program meeting the criteria established for statewide designation in more than one location.

Operational criteria. Examination of the enrollment picture for a proposed regional program would be an important initial step. For example, the program's enrollment could be examined against the criterion of a multi-year (e.g., 3-year) moving average of full-time equivalent enrollment of a specified proportion (e.g., 50%, 30%, or 25%) from beyond the home county. Similarly, designation as a state program could require meeting a specified criterion level of proportion of enrollment from beyond both the home county and the several contiguous counties.

In addition to meeting an enrollment criterion related to proportion of students residing beyond the home county for regional designation or beyond the home plus contiguous counties for statewide designation, proposed programs should also be examined in terms of the numbers of students actually enrolled, again using a multi-year moving average figure for evaluation purposes.

The criterion number of students decided upon as minimal for a program's designation as regional could also be linked to the program's cost level, to the effect that the least expensive types of programs (Group 1 in the approach described in Section V) could meet this criterion with a lower number than could a more expensive type of program, for example, one falling in Group 4. To illustrate, a Group 1 program might have a criterion number of only 15 students, while an expensive Group 4 program might be required to show evidence that the current or projected enrollment will total not less than a higher specified number, for example 25 or 30.

Programs failing to reach the stipulated number within three years after regional designation, or for three years after having achieved this level of viability, should be reviewed by an advisory group established for this purpose jointly by the Office of Community College Programs and the Association of Presidents, and including local college, state official, and regional citizen representation, to determine the advisability of continuation of regional program status.

The criterion minimal number of students required for a program's designation as a statewide offering might or might not be the same as for regional designation. Likewise, although a periodic review of

actual enrollments in statewide programs would be standard procedure, the triggering level for review of the advisory group could be somewhat different from that established for regional programs.

Criteria are needed for determining when a duplicate program may be initiated within a given county when in a contiguous county the same HEGIS code offering is already operating as an officially designated regional program. This requires a sensitive balancing of local county needs, on which basis programs are usually established, and regional needs, which could be less well satisfied were the initiating county to offer a competing program which could have the effect of reducing the regional program's enrollment below the critical mass needed for academic and economic viability. Operational procedures could be established that would provide assurance that the local county college proposing the new program could reasonably expect to generate enrollment which would match that which its county contributes to the regional program, plus the usual stipulated number of students needed to justify a new program in that setting.

Finally, attention needs to be given to the impact that having a program designated as regional or statewide in service will have on the offering college. Criteria can recognize the dual direction the impact could be given, one recognizing strengths already possessed by the college and the other encouraging new programmatic strengths to be developed. Both can be legitimate, but the circumstances where each of the two directions is to prevail need to be carefully described.

Principle 3 - Indicate the priority of factors used in making regionalization decisions, and of sensitivity to the interrelationships among the factors utilized

The narrative for discussion of Principle 2 included attention to several general policies, and several criteria for making those policies operational. Elements of regionalism policy should make note that the factors considered are interrelated, making it both difficult and unwise to approach regionalization decisions in a linear fashion.

Nevertheless, when the several factors identified are converted into criteria for making such decisions, it is possible to decide on a relative weight for each. Program descriptors discussed in connection with Principle 2 may be categorized as factors dealing with enrollment (with subfactors of geographic distribution in home and contiguous counties and beyond as well as size or absolute numbers); program costs; demonstrated multi-county or community need; impact on institutions; and concerns about program duplication.

The stance taken in this study has been that the most clear indication of a program's providing regional (as compared with local) service is the residence pattern, by county, of the students currently attending the program (or projected to be in the case of a new program). Without this student choice, no designation of a program is going to make it so; evidence for this conclusion was presented in Table 7 and the related narrative. Thus, the geographic distribution factor is probably the first priority in determining a program's regional (or statewide) status. Certainly beyond that point the rest of the criterion factors must be considered as an interrelated set, rather than as linear decision points in and of themselves. For example, a program

showing a rather low enrollment over a three-year period could still be given a regional designation if it was in the lowest cost category, was needed to serve the economic needs of a multi-county economic region such as a standard metropolitan statistical area, and presented strong evidence of being a "good fit" in an institution's overall academic plan.

In some cases, ranking the screening criteria in terms of priority and applying these criteria one by one to determine the regionalization status of a program might be a fruitful approach to this task. If this were the approach to be taken, however, the rank ordering of the criteria themselves should have a more stable basis than the opinions of involved persons. They should reflect the values held by leaders of the community colleges at local and state levels and the beliefs held by such leaders of the special ways that they see county community colleges collectively serving regional and statewide needs. A strong consensus seems to exist, for example, that enhanced economic development should result; others, however, that are more subtle, like contributing to a change in a locality's or region's general quality of life, may be influential. A wide consultative and participatory approach to applying this principle in order to reach a wide range of interests that could be affected by adopting particular elements of a regional policy is essential. Such a basis for priority ranking of criteria for making regionalism decisions could be a list of goals to be accomplished by the county community colleges in New Jersey. We believe that an approach to applying this principle in formulating a stronger regionalism policy framework which resorts heavily to formulas for weightings or to simply

emulating what is done by the community colleges in other states is insufficient; the policy framework should stress and encourage collective judgments.

Principle 4 - Emphasize the need for and importance of incentives

The state should provide incentive to the county community colleges to establish and operate programs serving regional and statewide services. Incentives can range from giving special status such as a noted status to providing the colleges offering such programs with financial support over and above that provided for programs justified strictly on the basis of local demand. Evidence is strong, not only in New Jersey but elsewhere, that without such incentives, local community college authorities are not inclined to serve needs that exist beyond their support area boundaries. From the standpoint of the colleges, one argument for additional state support for regional (or statewide) programs rests on the fact that a college agreeing to offer such a program is by that action indicating a willingness to accept a stronger regional and state-level voice in the determination of policciies related to that academic program. We dwell on this point further under Principle 7.

Principle 5 - Maintain flexibility in use of incentives

Incentives for fielding a regional or a state program should be flexible rather than rigid, again depending on a number of factors. These could include, for example, the extent to which operating such a program could be accomplished with current available faculty, equipment,

learning and other resources; extraordinary expenses, such as necessary "retooling" of faculty members; and the extent to which the college is really doing the state a "favor" by conducting a needed program which no other appropriately located college wishes to accept. An example of flexibility within a particular factor is found in the concept of differential funding of programs.

Differential support has some precedent in New Jersey in that individual courses may be supported at incremental levels. This principle could be extended to programs on the basis of the proportion of courses with Group 2, 3, or 4 cost rating which are included in the program's requirements. While a rough measure, such a differential for a program could be an incentive to the colleges to undertake needed high-cost programs which would not be cost effective without drawing from a multiple county service area.

This precedent for differential support could also be expanded to include financial incentive for the offering as a regional or state program a HEGIS code degree program which met the kinds of screening criteria discussed earlier. From the state's point of view, the cost effectiveness of such an approach could be compared with the cost of supporting such multiple programs with minimal enrollment. A more cost-effective use of the state's resources would also result if academic program planners in colleges in contiguous counties could confer and agree cooperatively on the distribution of a given set of courses, one or more to each college on a regional program basis, rather than having each of the adjacent county colleges offer each of the program set, all with minimal enrollments.

Probably the most feasible type of arrangement for establishing differential funding for regional programs would be a formula amount. A foundation could be established based on establishing criteria such as cost level, enrollment, and the like. An additional amount could be provided based on an approved listing as a new program and justifying extraordinary items, which might be a "start up" one-year or a special continuing expense.

Principle 6 - Design and maintain a database providing consistent integrated information requisite to making regionalization decisions

There is no lack of information about students and about programs at the county colleges. The problem, well-documented in the experience of this study, is that in a number of locations there is no cross-walk between the several data bases. Without this facility, aggregated data cannot be analyzed in terms of data elements which are in another but not that database. For example, the colleges can provide data on aggregate numbers attending from every county, but cannot readily disaggregate those overall residence data to build a matrix showing all of the college's programs on one axis and the counties on the other axis, with the intersecting cells showing the values of each program's number of students enrolled in each program from each county.

The effort accomplished in this project is a good beginning of what is needed in the county community college sector; it should be extended to other sectors offering postsecondary occupational programs as well. A high priority cooperative effort involving the Community

College Office, the Department of Higher Education's research office, and representatives of the colleges should be planned to design and implement a database needed for regionalism decisions. As soon as possible, at least the data most vital to regionalism should also be collected from the other postsecondary sectors in New Jersey which offer vocational programs. At present, to our knowledge, there is no data for these sectors relating student's program and county of residence--necessary information if the offerings of these sectors are to be considered in regionalism decisions.

Principle 7 - Assure a "citizen's voice" in regionalism design and regionalization decisions

A stronger voice is needed to represent the interests of the regions served by the regional programs in order to balance those representing local and state interests in formulating policies governing the programs.

A standing regional academic planning committee council could be established for each designated regional program, to include not only those formally related to the academic community, but also interested citizens to serve as a two-way information resource (to the planning group and in turn to the wider community); to give the community perspective in the development of policy recommendations; to assist the college in keeping abreast of requirements for equipment, facilities, and qualified faculty; and to serve as an informal link alerting the college community of present and future job opportunities, and currency of the program.

In many institutions, there is already an advisory committee associated with most occupational curricula. Adoption of regionalism elements that honor this principle would extend that concept, also taking into account the need for representation from beyond the home county, to include the adjacent counties in the case of a regional program, or people from a large portion of the state in the case of a statewide program.

We emphasize the extension of concern that this principle causes to be applied to regionalism beyond the usual range of jurisdiction of a county community college. And it is in part because that allowance of a wider participation in a college's academic program policies and actions that the college should be given special recognition and incentive by the state. Aside from the fact that a wider citizens' voice will help produce better program decisions, a college (and those who constitute the citizens' voice) should have concrete evidence of state-level belief in the value of the practice to be adopted.

Principle 8 - Encourage multi-sector participation and inter-sector communication

All sectors of postsecondary education providing occupational education constitute important resources for formulating policies which guide program development and operating decisions. The mechanisms for inter-sector communication, however, are minimal in some if not all fields. The gathering and sharing of essential data was discussed above. It is the student's loss that little or no inter-sector information is the case. It may affect the student directly in transition from one course or level to another and in loss

of transfer credit problems, as well as indirectly in that the student may have incomplete knowledge about the latest trends, future job opportunities, or the location within the region of the strongest courses and instructors available to serve the student's particular academic or career objectives.

If an adjacent county college and a nearby college from another New Jersey sector are both offering a program which a third college wishes to duplicate in order to meet a local need, information about both of these existing programs, not just the one in the county college, is necessary in order to make an adequately informed decision about regionalization. We repeat, if data from other sectors is to be useful for such purposes, it is particularly important that student residence data be capable of disaggregation by program of the respective students.

Principle 9 - Assure periodic review of (a) policy elements, and (b) regionalization decisions

Sound leadership and management practices dictate that all policy guidelines be regularly evaluated. Particularly in the occupational fields, the knowledge and skills base is changing so rapidly that it is to be expected that some of these changes would affect elements of a regionalism policy as well as other matters. Also, policy decisions made in good faith may simply prove not to be functional when implemented. In any event, the regionalism policies, as well as the decisions resulting from those policies, should be reviewed on a regularly scheduled basis.

Programs designated as regional or statewide in service coverage should be reviewed at least every five years for confirmation that they continue to meet the screening criteria elaborated earlier in this statement of principles for regionalization. To facilitate the periodic review, the Department of Higher Education should routinely gather information on enrollments, graduations, job placement of graduates, cost of program operations, faculty supply, and so on. Much of this information would be routinely available as an outcome of the database discussed above. Wherever appropriate, such descriptive information should be gathered on a county-by-county basis, and program by program, and the separate databases should be capable of linkage in order to provide data essential to regionalization decisions.

Principle 10 - Recognize proper relationships of regionalism to program review and coordination

Authorities working to strengthen regionalism applied to county community college occupational programs should take great care to distinguish between the purposes and principles to be adopted in regionalism from those attached to program review for approval and eligibility for state aid. Periodic program review is an established function of the New Jersey Department of Higher Education, along with certain aspects of coordination which encompass community colleges along with other sectors. When a program is under review, the purpose for which the review is being conducted must be kept sharply focused.

The purposes of a review for regionalization are not the same as those for a general program review. Regionalism relates to scope of service. Periodic program review is related to program approval, whether or not a program should exist, also a function of the Department. For the latter function, there are specific guidelines and overall criteria for a program's beginning or continued existence and support.

These criteria are much broader than those discussed with respect to regionalism and regionalization decisions, whether initial or confirming after a period of time. Whether or not a program starts or continues to exist is the Department's decision, made in cooperation with college administrators, in accordance with program review criteria. The program must exist (or be projected with sufficient evidence) in order to be considered for regionalization, but the latter review is narrower and more highly specialized in focus. In no sense does it serve the same purpose as program review by the Department.

As indicated earlier, those involved in the regionalization initial decision or its review should at least include individuals from the Office of Community College Programs, the Association of Presidents, and local college, state official, and regional citizen representatives. Their attention should be concentrated on matters of scope of program service and the efficiency and effectiveness of the service to the full range of students and geographic area the service is expected to reach.

Principle 11 - Encourage periodic systemic review of job opportunities in the region and state for graduates of existing and proposed regional programs

A formal procedure is needed to keep academic planners, student services personnel, and students informed about job opportunities for completers of the designated regional programs in the state. Because personnel completing community college occupational programs tend to seek initial employment nearby, employment data by subsections of the state as well as by county, state of New Jersey, and nearby states are needed.

Lacking more direct quantitative indications of manpower requirements and employment opportunities by specific job classifications, in specific localities and counties, a strong indicator of expected employment potential in an area is the request for admission to a program expressed by students who enroll in occupational studies. The time lag between marketplace reality and student awareness, however, is sometimes too long for proper impact on institutional program decisions and an individual student's academic planning. This results in an overproduction of graduates, often in a cyclical pattern. The applicant pool in these cases eventually adjusts to market demands, but not before many persons made academic decisions which may not result in the career paths they had earlier envisioned.

By the very nature of the decisions which must be made about regional programs, these programs likely will receive more than a little share of attention against criteria for their special designation. If the information which is to be gathered can include

systematic data on related job opportunities, the time lag between marketplace reality and student awareness can be shortened.

Principle 12 - Emphasize the importance of maintaining a strategic stance

A strategic stance in advancing regionalism in New Jersey county community colleges requires at least two things. One is adoption of an inclusive, global view of the factors that bear meaningfully on regionalism, and the other is the maintenance of a forward or futuristic point of view for its application. Neither of these requirements is easy to meet, but the policy framework should work toward doing so in every way possible.

Descriptive data on which to base judgements about regional and state programs should include strategic information about similar degree programs of other New Jersey postsecondary institutions of all types, and about programs with the same HEGIS designation at different award levels (diploma, certificate, baccalaureate), as well as those at the associate degree level. This will provide information necessary to minimize duplication, but also would give evidence of needed faculty and institutional strength necessary to field a particular specialty.

After the draft of the final report was presented to Department of Higher Education officials, they asked that the consultants provide information about associate level programs offered in other states but not in New Jersey. Results of compliance with that request may be found in Appendix C. Used for this purpose was the College Board's annual Index of Majors for some 2,800 institutions. Also in that

appendix are instructions for comparing the list of reported New Jersey programs (Appendix B) with the list of programs not found in New Jersey institutions, according to the Index compilers. Although there are some differences in the programs reported internally for New Jersey institutions and those reported by the Index, this kind of strategic information would merit an annual look in order to add to the state's information about possible choices for development as regional or statewide programs.

Principle 13 - Move to increase the identity and legitimacy of regionalism and regionalization

When a change of policy direction in education is being considered, it is advantageous to have those in leadership positions informed about and favorable toward that change; it is also helpful to have a broad base of public understanding. Although the term "regionalism" has a relatively long history in the policy framework of New Jersey county community colleges, the concept is still not broadly understood and the actual procedures by which it is made operational are not widely known.

By design, this study has concentrated on the policy framework for regionalism, rather than on specific procedures for the implementation of those policies through regionalization. No specific policies were put forth, but policies were outlined, with illustrative options which can now be discussed, evaluated, and selected by the New Jersey policy makers. For example, the cutting point for declaring that a program meets the geographic screening criterion could be 50%, or 30%, or 25% of the program's enrollees with residence beyond the

home county. That approach was explained, and data gathered from all of the county colleges illustrated its use with actual programs and actual students. Earlier in this section, operational criteria were suggested, by which programs could be designated for regional or statewide designation.

As a first step toward implementation of this principle, leadership should endorse actions which give greater visibility and notice to the concepts of regionalism and regionalization. Deliberations on relevant proposed policies should be publicized. Policy pronouncements should be widely disseminated, not only to implementing institutions and agencies, but also the wider public.

Principle 14 - Encourage and assist leadership development at all levels (state, regional, local) dedicated to regionalism

Key to effective development of a strong policy on regionalism is the leadership attention it receives, but somewhat paradoxically, a sound policy is essential to bring out leadership and to help it to be effective. State, local, and regional leadership is needed. Leadership training as it relates to regionalism should be launched at all three levels.

Staff in the Office of Community College Programs and in the Department of Higher Education should be assigned to give strong direct attention to working with personnel at local and regional levels, first in workshops to spread understanding of regionalism and then in order to facilitate implementation. This would need action to identify emerging or future needs for new programs, to determine

regional manpower requirements, to refine procedures for the categorization of programs into cost categories, and so on.

In summary, leadership is needed to spread the word about the values to the state, the local colleges, the students, and the economy of regionalism, and this is most apt to occur from those in leadership positions who have the opportunity to work directly with the concept and its implementation. The present study is a beginning, one which provides a foundation for both policy development, and actions to implement that policy in regionalization decisions.

Conclusion

A strong basis for declaring a policy to promote regionalism in establishing and maintaining community college occupational programs in New Jersey already exists. Much of the structure and procedures already established and in use for overseeing academic programming can also be utilized in the regionalization of occupational programs, both existing and new. At the risk of oversimplifying all that has been discussed above, what seems to be needed can be reduced to four innovations: (1) presentation and wide publication of a strong declaration on the part of leadership at both local and state levels of intent to act positively to promote regionalism; (2) action to strengthen the voice of regional interests to produce a better balance to those representing local and state interests in formulating policy for academic programming and making program decisions; (3) strengthening the base of information (data) on which such policy and decision making rest; and (4) developing staff capability and

commitment at all levels to promote greater understanding of the concept of regionalism and regionalization and how to become more expert in implementing these concepts in practice.

Many of the recommendations we have made support ones that have been advanced by others interested in enhancing postsecondary education in New Jersey. We believe, however, that the project and this report achieved initial accomplishment of the purposes to which it was directed, namely, to improve understanding of the concept of regionalism as applied to community college occupational programs, to speak to policy elements that are needed to promote use of the concept in practice, and to make a start at developing the needed data bases on which to carry regionalization of occupational programs forward.

APPENDIX A

NEW JERSEY COMMUNITY COLLEGE REGIONALISM PROJECT

FORM A - Report on Programs and Enrollment Distribution

NEW JERSEY COMMUNITY COLLEGE REGIONALISM PROJECT

FORM A - Report on Programs and Enrollment Distribution

INSTRUCTIONS: Please complete this form only for the program identified below. Report opening fall HEADCOUNT enrollment for degree program only. "County of residence" is home county of students at time of admission to college.

College Name: _____ Location: _____ (P.O.) _____ (County)

Person Completing Form: _____ (Name) _____ (Position) Date Form Completed: _____

PROGRAM TITLE: _____ HEGIS 6-Digit Code _____ Award for Completion (give degree, e.g., A.A.S., A.S., etc.): _____

Year Program Started: 19 __ __ College's Classification of Primary Purpose of Program (check only one): ____ Transfer ____ Occupational

Program Data	Total	Distribution: Headcount Enrollment by COUNTY OF RESIDENCE																					Out of State	Origin Unknown
		Atlantic	Bergen	Burlington	Camden	Cape May	Cumberland	Essex	Gloucester	Hudson	Hunterdon	Mercer	Middlesex	Monmouth	Morris	Ocean	Passaic	Salem	Somerset	Sussex	Union	Warren		
Year: 1984-1985																								
Fall Enrollment																								
Full Time																								
Part Time																								
Total Headcount																								
Year: 1983-1984																								
Fall Enrollment																								
Full Time																								
Part Time																								
Total Headcount																								
Year: 1982-1983																								
Fall Enrollment																								
Full Time																								
Part Time																								
Total Headcount																								

a.c.e. - 2/8/85

APPENDIX B

ASSOCIATE LEVEL PROGRAMS REPORTED AS OFFERED BY ONE OR MORE NEW JERSEY COUNTY COMMUNITY COLLEGES

170405	Mental Health/Human Services Assisting
170406	Mental Health/Human Services Technology
170501	Animal Technology
170503	Medical Assisting
170506	Medical Records Technology
170599	Miscellaneous Allied Health Services, Other
170701	Ophthalmic Dispensing
170808	Occupational Therapy Assisting
170815	Physical Therapy Assisting
170818	Respiratory Therapy
181101	Nursing, General
190503	Dietetics/Human Nutritional Services
200201	Child Care and Guidance Management/Services, General
200202	Child Care Aide/Assisting
200205	Teacher Aide
200401	Food Production, Management, and Services, General
200404	Dietetic Aide/Assisting
220103	Legal Assisting
240101	Liberal/General Studies
260101	Biology, General
270101	Mathematics, General
309999	Multi/Interdisciplinary Studies, Other
310301	Parks and Recreation Management
400101	Physical Sciences, General
400501	Chemistry, General
410101	Biological Laboratory Technology
410301	Chemical Technology
430105	Criminal Justice Technology
430107	Law Enforcement
430109	Security Services
430201	Fire Control and Safety Technology
440201	Community Services
440401	Public Administration
440701	Social Work, General
449999	Public Affairs, Other

450101	Social Sciences, General
451201	Urban Studies
469999	Construction Trades, Other
470105	Industrial Electronics
470605	Diesel Engine Mechanics
480101	Drafting, General
480105	Mechanical Drafting
480201	Graphic and Printing Communications, General
480203	Commercial Art
480507	Tool and Die Making
489999	Precision Production, Other
490102	Airplane Piloting and Navigation
490104	Aviation Management
490106	Flight Attendants
500101	Visual and Performing Arts, General
500402	Graphic Design
500701	Fine Arts, General
500801	Graphic Arts Technology
500901	Music, General

APPENDIX C

ACADEMIC MAJORS OFFERED AT ASSOCIATE DEGREE LEVEL IN OTHER STATES BUT NOT IN NEW JERSEY

Table B-1

Associate Level Programs Reported as Offered by One or More New Jersey County Community Colleges

010101	Agricultural Business and Management, General
010601	Horticulture, General
020401	Plant Sciences, General
040201	Architecture
050201	Afro-American (Black) Studies
060101	Business and Management, General
060201	Accounting
060401	Business Administration and Management, General
060701	Hotel/Motel Management
060705	Transportation Management
061101	Labor/Industrial Relations
061401	Marketing Management
061701	Real Estate, General
070101	Accounting/Bookkeeping/Related Programs, General
070201	Banking and Related Financial Programs, General
070301	Business Data Processing and Related Programs, General
070305	Business Data Programming
070601	Secretarial and Related Programs, General
070603	Executive Secretarial
070605	Medical Secretarial
079999	Business and Office, Other
080102	Fashion Merchandising
080705	Retailing
080901	Hospitality and Recreation Marketing, General
090401	Journalism (Mass Communications)
100103	Photographic Technology
100104	Radio/Television Production/Broadcasting Technology
110101	Computer and Information Sciences, General
1102-1	Computer Programming
110301	Data Processing
130101	Education, General
131001	Special Education, General

131202	Elementary Education
131204	Pre-Elementary Education
131205	Secondary Education
131303	Business Education
131314	Physical Education
131399	Teacher Education, Specific Subject Areas, Other
140101	Engineering, General
141301	Engineering Science
150101	Architectural Design and Construction Technology
150201	Civil Technology
150202	Drafting and Design Technology
150301	Computer Technology
150302	Electrical Technology
150303	Electronic Technology
150304	Laser Electro-Optic Technology
150399	Electrical and Electronic Technologies, Other
150403	Electromechanical Technology
150501	Air Conditioning/Heating/Refrigeration Technology
150599	Environmental Control Technologies, Other
150603	Industrial Technology
150610	Welding Technology
150701	Occupational Safety and Health Technology
150702	Quality Control Technology
150801	Aeronautical Technology
150803	Automotive Technology
150805	Mechanical Design Technology
159999	Engineering/Engineering-Related Technologies, Other
170101	Dental Assisting
170102	Dental Hygiene
170103	Dental Laboratory Technology
170206	Emergency Medical Technology - Paramedic
170208	Nuclear Medical Technology
170209	Radiograph Medical Technology
170210	Respiratory Therapy Technology
170309	Medical Laboratory Technology

Academic Majors Offered at Associate Degree Level in Other States But Not in New Jersey

New Jersey's status as one of the most advanced states in the nation is well recognized. It is a leader in many aspects of business and economic development and the location of several notable centers of research and development in higher education. It also has one of the best developed community college systems.

In view of these facts, the expectation is that most if not all academic programs offered at the associate degree level anywhere in the nation would also be found in New Jersey. As an additional request at the time the draft final report was presented, the State Board of Higher Education representatives meeting with the consultants asked that they provide, if possible, some indication of programs available elsewhere but not in New Jersey. A document published annually by the College Entrance Examination Board, entitled Index of Majors, provided a beginning resource for this exploration.

The Index of Majors for 1985-86 provides a guide to 514 undergraduate (including associate) and graduate majors at some 2,800 accredited colleges and universities across the country. The National Center for Education Statistics' new HEGIS (Higher Education General Information Survey) taxonomy of instructional programs was used for the list of curriculum fields in this document. It was distributed to colleges as the basis for reporting their majors. Understandably, the fit between the actual major at a particular college and the taxonomy listing was inexact in some cases. When the conformity was not perceived (by the colleges) to be close enough, they were able to add

majors not included in the taxonomy, but these additional curricula do not appear in the Index, and thus were not immediately available for comparison of offerings in other states with those in New Jersey.

In Table C-1 in this Appendix may be found a copy of the taxonomy used in the Index, which represents the new HEGIS code, but without the familiar six-digit program designations. Within the 63 major fields of study, the disciplines are arranged alphabetically in this taxonomy. The body of the Index is arranged not according to major fields (such as biology), but according to an alphabetic listing of the disciplines themselves. Thus the first item in the Index is the discipline of accounting, part of the Business and Management major field of study. Other disciplines within this major field may be found throughout the Index, always alphabetically by discipline, not alphabetically by discipline within the major field of study. This arrangement presents some difficulty, though it is not insurmountable, in any attempt to compare the list of 121 current New Jersey county college programs (Appendix B), which is in "discipline within major field" order, with the information in the body of the Index, which is in "discipline irrespective of major field of study" order.

It is possible, of course, to choose a New Jersey program from the Appendix B list, then find it as alphabetized in the body of the Index. At that point, the offerings are arranged by state, with the colleges therein alphabetized and coded for level of offering, such as A for associate and B for baccalaureate.

Taken strictly at face value, the 1985-86 Index shows that 280 associate level programs not offered in New Jersey are offered in at

least one other state, with the range being from one program in Delaware to a high of 147 programs in California. Table C-2 displays these 280 disciplines alphabetically (following the pattern in the body of the Index), with a distribution of the program's offering by state, and a tally in the right margin of the number of states reporting that discipline major.

Technically, the two lists of programs in Appendix B (New Jersey) and Table C-2 of this appendix (elsewhere but not in New Jersey) should be mutually exclusive. A comparison by discipline title, however, will soon show that this is not always the case. For example, the first two majors found in the New Jersey list (agricultural business and management, and horticulture) are also found in Table C-2, indicating that according to the Index's information, those two programs do not exist in New Jersey. On the other hand, two majors further down on the first page of the New Jersey list (accounting, and business administration and management) are not found on the Index list, which is as it should be since these are programs found in a number of New Jersey county colleges.

These illustrations indicate the wisdom of carefully comparing the two lists (Appendix B and Table C-2) before concluding that a particular associate program is or is not a new possibility for this state. A suggested procedure would be to peruse the disciplines listed in Table C-2 (arranged within major fields of study) in order to discover whether the program is now offered anywhere in the New Jersey county college system. If not, an alphabetic search of Table C-2 would show the states offering that program elsewhere in the

nation. Finally, a look at the actual Index would provide the specific colleges within the listed states which have that major which could be of interest to New Jersey.

Table C-1

Major Fields of Study by Discipline
(Source: Index of Majors, 1985-86, 8th ed. New York: CEEB)

Agribusiness and agricultural production

Agricultural business
Agricultural business and management
Agricultural economics
Agricultural mechanics
Agricultural production
Agricultural products and processing
Equestrian science
Horticulture
International agriculture

Agricultural sciences

Agricultural sciences, general
Agronomy
Animal sciences
Dairy
Food sciences
Horticultural science
Ornamental horticulture
Plant protection (pest management)
Plant sciences
Poultry
Range management
Soil sciences

Allied health services

Allied health, general
Dental assistant
Dental hygiene
Dental laboratory technology
Geriatric aide
Medical assistant
Medical illustrating
Medical records technology
Mental health/human services
Nursing, practical
Ophthalmic services
Physician's assistant
Veterinarian's assistant

Architecture

Architecture

Area studies

African studies
American studies
Asian studies, general
Caribbean studies
East Asian studies
Eastern European studies
European studies, general
Latin American studies
Middle Eastern studies
Pacific area studies
Russian and Slavic studies
Scandinavian studies
South Asian studies
Southeast Asian studies
Western European studies

Biology

Biology, general
Biochemistry
Biophysics
Cell biology
Microbiology
Molecular biology

Botany

Botany, general
Bacteriology
Mycology
Plant genetics
Plant pathology
Plant pharmacology
Plant physiology

Business and management

Business and management, general
Accounting
Aviation management
Banking and finance
Business administration and management
Business economics
Business statistics
Contract management and procurement/purchasing
Hotel/motel and restaurant management
Human resources development
Institutional management
Insurance and risk management
International business management
Investments and securities
Labor/industrial relations
Management information systems
Management science
Marketing management
Marketing research
Operations research (quantitative methods)
Organizational behavior
Personnel management
Real estate
Small business management and ownership
Taxation
Trade and industrial supervision and management
Transportation management

Business and office

Business and office, general
Business computer, console, and peripheral equipment operation
Business data entry equipment operation
Business data programming
Business data processing and related programs
Business systems analysis
Court reporting
Legal secretary
Medical secretary
Secretarial and related programs, general
Word processing

Chemistry

Chemistry, general
Analytical chemistry
Inorganic chemistry
Organic chemistry
Pharmaceutical chemistry
Physical chemistry

Civil technologies

Civil technology
Drafting and design technology
Survey and mapping technology
Urban planning technology

Communications

Communications, general
Advertising
Communications research
Journalism
Public relations
Radio/television (including news broadcast)
Telecommunications

Communications technologies

Educational media technology
Interpreter for the deaf
Motion picture technology
Photographic technology
Radio/television technology

Computer and information sciences

Computer and information sciences, general
Computer mathematics
Computer programming
Data processing
Information sciences and systems
Microcomputer software
Robotics
Systems analysis

Construction trades

Carpentry
Electrical installation
Masonry, tile setting
Plumbing, pipefitting, steamfitting

Crafts and design

Crafts, general
Ceramics
Enameling
Fiber/textiles/weaving
Glass
Graphic arts technology
Graphic design
Illustration design
Industrial design
Metal/jewelry
Theater design

Diagnostic and treatment services

Electrodiagnostic technologies
Emergency medical technologies (including ambulance and paramedic)
Medical radiation dosimetry
Nuclear medical technology
Radiograph medical technology
Respiratory therapy technology
Surgical technology

Education administration

Education administration, general
Administration of special education
Adult and continuing education administration
Community college education administration
Educational supervision
Higher education administration

Education, general

Education, general
Adult and continuing education research
Curriculum and instruction
Educational statistics and research
Educational testing, evaluation, and measurement
Higher education research
International and comparative education
School psychology
Social foundations
Student counseling and personnel services

Engineering technologies, general

Engineering and engineering-related technologies, general
Architectural technologies
Computer technology
Electrical technology
Electronic technology
Laser electro-optic technology
Mining and petroleum technologies
Occupational safety and health technology
Quality control technology

Engineering

Engineering, general
Aerospace, aeronautical, and astronautical engineering
Agricultural engineering
Architectural engineering
Bioengineering and biomedical engineering
Ceramic engineering
Chemical engineering
Civil engineering
Computer engineering
Electrical, electronics, and communications engineering
Engineering mechanics
Engineering physics
Engineering science
Environmental health engineering
Geological engineering
Geophysical engineering
Industrial engineering
Materials engineering
Mechanical engineering
Metallurgical engineering
Mining and mineral engineering
Naval architecture and marine engineering
Nuclear engineering
Ocean engineering
Petroleum engineering
Surveying and mapping sciences
Systems engineering
Textile engineering

Environmental control technologies

Air conditioning, heating, and refrigeration technology
Air pollution control technology
Energy conservation and use technology
Sanitation technology
Solar heating and cooling technology
Water and wastewater technology

Environmental design

City, community, and regional planning
Environmental design
Interior design
Landscape architecture
Urban design

Ethnic studies

Afro-American (black) studies
American Indian studies
Hispanic American studies
Islamic studies
Jewish studies
Mexican American studies

Fine arts

Fine arts, general
Art conservation
Art history and appreciation
Drawing
Painting
Sculpture

Geological sciences

Geochemistry
Geology
Geophysics and seismology
Paleontology

Health sciences

Health sciences, general
Basic clinical health sciences
Chiropractic (include all work except D.C. or D.C.M.)
Dental specialties (include work beyond first professional degree only)
Emergency/disaster science
Gerontology
Health care administration
Hematology
Medical laboratory
Medical records administration
Medical specialties (include work beyond first professional degree only)
Nurse anesthetist
Nursing
Optometry (all work except O.D. degree)

Pharmacy (include all work except D. Phar. degree)
Podiatry or podiatric medicine (include work beyond first professional degree only)
Population and family planning
Predentistry
Premedicine
Prepharmacy
Preveterinary
Public health laboratory science (including epidemiology)
Speech pathology/audiology
Sports medicine

Home economics

Home economics, general
Business home economics
Family and community services
Family/consumer resource management
Fashion design
Food sciences and human nutrition
Geriatric services
Human environment and housing
Individual and family development
International/comparative home economics
Textiles and clothing

Industrial production

Chemical manufacturing technology
Industrial technology
Manufacturing technology
Optical technology
Plastic technology
Textile technology
Welding technology

Languages

African languages (non-Semitic)
Arabic
Chinese
Foreign languages, multiple emphasis
French
German
Greek (classical)
Greek (modern)
Hebrew
Indic languages (including Hindi and Sanskrit)
Iranian languages
Italian
Japanese
Korean
Latin
Native American languages
Portuguese
Russian
Scandinavian languages
Slavic languages (other than Russian)
Spanish
Yiddish

Law

Law (include all work except LL.B. or J.D. degree)
Legal assistant
Prelaw

Letters

American literature
Classics
Comparative literature
Creative writing
English, general
English literature
Folklore and mythology
Linguistics (including phonetics, semantics, and philology)
Rhetoric
Speech, debate, and forensics
Technical and business writing

Library and archival sciences

Archival science
Library assistant
Library science
Museum studies

Life sciences, specialized areas

Anatomy
Biometrics and biostatistics
Ecology
Embryology
Endocrinology
Environmental science
Histology
Marine biology
Neurosciences
Nutritional sciences
Parasitology
Radiobiology
Toxicology

Marketing and distribution

Marketing and distribution, general
Apparel and accessories marketing
Fashion merchandising
Hospitality and recreation marketing
Insurance marketing
Personal services
Retailing
Tourism
Transportation and travel marketing

Mathematics

Mathematics, general
Actuarial sciences
Applied mathematics
Pure mathematics
Statistics

Mechanical and electromechanical technologies

Aeronautical technology
Automotive technology
Biomedical equipment technology
Computer servicing technology
Electromechanical technology
Instrumentation technology
Mechanical design technology

Mechanics and repairers

Air conditioning, heating, and refrigeration mechanics
Aircraft mechanics
Automotive mechanics
Diesel engine mechanics
Electrical and electronics equipment repair
Industrial equipment maintenance and repair
Power plant operation and maintenance (stationary energy sources)

Medical laboratory technologies

Cytotechnology
Medical laboratory technologies

Military sciences

Aerospace science (Air Force)
Coast Guard science
Merchant Marine
Military science (Army)
Naval science (Navy, Marines)

Multi/interdisciplinary studies

Biological and physical sciences
Clinical pastoral care
Engineering and other disciplines
Humanities and social sciences
Liberal/general studies
Peace studies
Women's studies

Music

Music, general
Music history and appreciation
Music performance
Music theory and composition

Parks and recreation

Parks and recreation management
Recreation and community services technologies
Water resources

Philosophy

Philosophy

Physical sciences, general

Physical sciences, general
Astronomy
Astrophysics
Atmospheric sciences and meteorology
Earth sciences
Metallurgy
Oceanography
Planetary science

Physics

Physics, general
Atomic/molecular physics
Electron physics
Elementary particle physics
Fluids and plasmas
Nuclear physics
Optics
Solid state physics

Protective services

Protective services, general
Criminal justice studies
Criminal justice technology
Fire control and safety technology (including firefighting)
Fire protection
Forensic studies
Law enforcement and corrections
Law enforcement and corrections technologies

Precision production

Drafting
Graphic and printing production
Precision metal work
Woodworking

Psychology

Psychology, general
Clinical psychology
Cognitive psychology
Community psychology
Comparative psychology
Counseling psychology
Developmental psychology
Experimental psychology
Industrial and organizational psychology
Personality psychology
Physiological psychology
Psycholinguistics
Psychometrics
Psychopharmacology
Quantitative psychology
Social psychology

Public affairs

Public affairs, general
Community services
Funeral services
International public service
Medical social work
Public administration
Public policy studies
Public sanitation
Public transportation
Public utilities
Social work, general

Rehabilitation services

Occupational therapy
Occupational therapy assistant
Physical therapy
Physical therapy assistant
Respiratory therapy

Religion

Religion

Renewable natural resources

Renewable natural resources, general
Conservation and regulation
Fishing and fisheries
Forest products processing technology
Forestry and related sciences
Forestry production and processing
Wildlife management

Science technologies

Science technologies, general
Biological laboratory technology
Nuclear technologies
Oceanographic technologies

Social Sciences

Social sciences, general
Anthropology
Archeology
Behavioral sciences
Criminology
Demography
Economics
Geography
History
International relations
Political science and government
Sociology
Urban studies

Special education

Special education, general
Bilingual/bicultural education
Education of the culturally disadvantaged
Education of the deaf and hearing impaired
Education of the emotionally handicapped
Education of the gifted and talented
Education of the mentally handicapped
Education of the multiple handicapped
Education of the physically handicapped
Education of the visually handicapped
Remedial education
Specific learning disabilities
Speech correction
Education of exceptional children, not classifiable above
Teaching English as a second language/foreign language

Teacher education, general

Elementary education
Junior high education
Preelementary education
Secondary education
Teacher aide

Teacher education, specific subjects

Agricultural education
Art education
Business education
Driver and safety education
English education
Foreign languages education
Health education
Home economics education
Industrial arts education
Marketing and distributive education
Mathematics education
Music education
Nursing education
Nutritional education
Physical education
Reading education
Science education
Social science education
Social studies education
Technical education
Trade and industrial education

Theology

Bible studies
Biblical languages

Missionary studies
Religious education
Religious music
Theological studies

Transportation

Airline piloting and navigation
Air traffic control
Aviation computer technology
Commercial fishing operation
Flight attendants
Marine maintenance
Vehicle and equipment operation

Visual and performing arts

Visual and performing arts, general
Cinematography/film
Dance
Dramatic arts
Film animation
Film arts, general
Holography
Photography
Video

Vocational home economics

Child development, care, and guidance
Clothing and textiles management, production, and services
Dietetic aide/assistant
Food production, management, and services
Home furnishings and equipment management, production, and services
Institutional, home management, and supporting programs

Zoology

Zoology, general
Entomology
Human and animal genetics
Human and animal pathology
Human and animal pharmacology
Human and animal physiology

First professional degrees

Dentistry (D.D.S. or D.M.D.)
Medicine (M.D.)
Optometry (O.D.)
Osteopathic medicine (D.O.)
Pharmacy (D.Phar.)
Podiatry (Pod.D. or D.P.) or podiatric medicine (D.P.M.) (including chiropody)
Veterinary medicine (D.V.M.)
Chiropractic (D.C. or D.C.M.)
Law, general (LL.B. or J.D.)
Theological professions (B.D., M.Div., Rabbi or other theological)

Table C-2

Academic Majors at Associate Degree Level Offered 1985-86 in United States but NOT Offered in New Jersey, by States in Which Found (Source: Index of Majors, 1985-86, 8th Ed., New York: College Entrance Examination Board).

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Administration of Special Education	X																																																		1
Advertising			X		X				X							X					X	X								X	X			X			X			X				X		X			14
Aerospace/aeronautical/astronautical engineering			X		X											X																									X								4
African studies																																						X												1
Afro-American (black) studies					X																																													1
Agricultural business	X		X	X	X	X			X	X		X	X	X	X	X	X			X		X	X		X	X	X			X	X	X	X	X	X	X		X	X	X			X		X	X	X	32
Agricultural business and management	X		X		X				X	X		X	X		X	X	X			X		X	X	X	X		X	X			X	X		X	X	X	X		X	X			X		X	X	X	29
Agricultural economics	X			X						X		X		X	X	X							X								X														X			X	11
Agricultural education					X										X		X						X																											X	5
Agricultural engineering				X						X						X															X	X				X														6
Agricultural mechanics			X		X								X		X	X			X						X	X			X	X					X				X										14
Agricultural production	X				X					X			X		X	X	X								X		X			X			X			X					X	X		X				X		16
Agricultural products and processing														X		X																													X					3
Agricultural sciences, general	X		X	X	X	X			X	X	X	X	X	X	X	X	X			X		X	X	X		X		X			X	X	X	X	X	X	X		X	X	X	X	X	X		X		X	X	34
Agronomy				X	X							X			X							X	X		X		X			X	X			X									X					X	13
Air conditioning/heating/refrigeration mechanics	X		X		X	X			X		X		X	X	X	X	X			X		X								X		X	X	X	X		X	X		X			X	X		X			23
Air traffic control	X																																				X													2
Aircraft mechanics	X	X	X		X				X	X	X		X	X	X							X								X					X			X		X			X	X					16

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Allied health, general	X	X	X	X	X	X			X	X		X	X	X	X	X	X		X	X	X	X	X	X	X		X			X	X	X		X	X	X	X		X	X	X	X	X	X	X				37
American Indian studies																	X									X																								2
American literature									X						X							X															X												4
American studies					X				X	X		X		X	X	X					X		X							X	X						X			X	X								13
Analytical chemistry																		X														X																2
Anatomy															X	X																X				X					X							5
Anthropology			X		X	X			X					X		X							X		X												X					X			X			X	12
Apparel and accessories marketing					X														X			X	X																					X	X			6
Applied mathematics					X																X					X					X													X				5
Archeology					X										X																																	2
Architectural engineering							X										X								X				X			X									X		X	X				8
Art education					X				X	X				X		X					X											X						X						X			X	10
Art history and appreciation	X			X	X				X	X						X					X		X	X			X				X	X	X	X	X	X						X			X	X	18
Asian studies, general									X																																							1
Astronomy					X				X							X																																4
Atmospheric sciences and meterology									X																																						1
Automotive mechanics	X	X	X		X	X	X		X		X		X	X	X	X				X	X		X			X	X	X	X	X	X	X	X		X		X		X			X	X	X	X	X	X	32
Bacteriology					X																											X											X			X			4

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Behavioral sciences					X				X					X						X	X				X																									6
Biblical languages				X																			X		X																X								4
Bilingual/bicultural education					X		X																										X									X							4
Biochemistry																															X										X							2
Bioengineering and biomedical engineering						X									X																		X																3
Biological laboratory technology															X																X						X									X			4
Biomedical equipment technology	X					X			X							X						X	X								X	X		X			X				X						X		12
Botony			X	X	X				X	X		X	X		X	X						X	X	X			X				X	X		X	X	X					X			X				20
Business economics					X				X						X	X															X	X		X	X	X			X	X	X			X		X		13
Business education	X				X									X						X		X		X										X		X											X		9
Business statistics					X		X															X																											3
Business systems analysis																			X																X														2
Carpentry	X		X		X		X					X		X	X	X			X		X		X		X				X		X	X	X				X		X				X	X			X		23
Cell biology																																X																		1
Chemical engineering				X				X			X				X		X				X		X			X																	X							9
Child development/care/guidance	X	X	X		X		X		X				X	X	X	X		X				X	X	X				X				X	X		X	X	X				X	X			X	X		X		26
Chinese						X																																												1
Chiropractic																							X										X																	2

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Cinematography/film					X				X																						X					X														4
City/community/regional planning					X																																													1
Civil engineering			X		X		X		X					X		X	X		X	X	X				X					X	X	X		X						X			X			X			18
Clothing and textiles management/ production/services			X		X				X	X	X			X		X																																		7
Comparative literature					X																											X																			2
Computer engineering					X				X							X					X																						X		X							6
Computer mathematics					X				X												X										X						X															5
Computer servicing technology					X	X							X	X	X	X			X		X				X						X	X			X			X		X		X	X			X		X			17
Conservation and regulation																X								X							X																				3
Contract management and procurement/ purchasing					X																											X	X		X		X														4
Counseling psychology							X																	X								X																			3
Court reporting			X		X				X				X		X	X				X		X			X						X			X			X	X			X			X	X	X			17*
Crafts, general																X		X																			X									X		X			5
Creative writing			X		X				X							X																X										X				X					7
Criminal justice technology		X		X	X	X			X				X			X				X		X									X	X		X		X				X		X	X	X	X				18
Criminology					X				X	X				X												X			X													X	X	X					X		10
Cytotechnology																X	X				X											X																			4
Dairy				X	X					X		X				X								X			X				X			X		X					X			X						12

*D.C. offers Associate program--not included in this figure.

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Developmental psychology				X																														X																	2
Dietetic aide/assistant	X		X		X				X				X			X			X			X	X				X				X			X			X	X						X		X				16
Drawing					X					X			X			X																					X								X	X					7
Driver and safety education														X																																						1
Earth sciences				X		X							X	X		X																X	X			X																9
Ecology					X											X																			X												X					5
Education of exceptional children																																						X															1
Education of the emotionally handicapped																					X																															1
Education of the gifted and talented														X																																						1
Education of the mentally handicapped																X																					X									X						3
Education of the multiple handicapped																								X														X														2
Education of the physically handicapped																X																																					2
Educational media technology													X								X																																	4
Educational statistics and research																X																																					1
Electrical installation	X		X		X						X		X	X	X	X			X														X	X										X	X		X			X		16
Electrodiagnostic technologies	X		X		X				X						X						X	X		X		X				X		X			X			X							X		X	X			16
Emergency medical technologies	X		X	X	X	X			X				X		X	X														X			X		X			X						X	X					X		16
Emergency/disaster science																		X							X											X			X													4

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Energy conservation and use technology					X											X															X			X										X					5
Engineering mechanics																									X																									1
Engineering physics																X									X																									2
Engineering science																X					X					X					X																			4
English education	X				X									X		X						X															X		X										X	8
English literature			X	X						X	X			X	X	X	X					X										X	X			X			X						X			X	15
Environmental design					X																	X	X								X																	4
Environmental health and engineering																					X					X						X																X		5
European studies, general											X												X																											2
Experimental psychology																																X										X							2
Family and community services					X																																												1
Family/consumer resource management					X											X							X																							X			4
Fashion design					X					X				X	X	X					X											X												X		X	X		10
Fiber/textiles/weaving																X																																	1
Fire protection						X										X															X				X	X						X						6
Fishing and fisheries		X			X																		X								X						X											5
Food sciences					X	X				X			X			X					X	X	X	X			X				X	X				X			X			X		X		X		17
Foreign languages education															X																																	X	2

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Forensic studies																																													X					1
Forest products processing technology																		X																			X		X			X								4
Forest and related sciences	X	X			X	X			X	X		X	X	X	X	X				X	X	X	X	X		X	X		X		X	X	X	X		X	X						X	X			X	28
Geography					X	X				X			X	X	X	X						X	X									X			X	X					X	X			X			X	16
Geological engineering			X																						X	X																								3
Geology			X		X	X			X	X			X		X																X			X		X								X	X			X	14
Geophysical engineering																									X	X																								2
Geriatric aide													X		X																	X		X															4
Geriatric services																																X																		1
Gerontology					X	X										X						X	X								X		X			X						X	X						10
Graphic and printing production	X		X		X	X			X	X		X	X	X	X	X	X		X	X		X	X	X	X	X		X	X		X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	36*
Greek (classical)							X																																											1
Health care administration			X		X									X																	X											X		X	X				7
Health education														X								X		X							X										X								5
Health sciences, general	X				X	X			X	X			X		X	X					X	X	X	X			X				X	X		X	X	X		X		X	X		X		X		X	28
Hebrew				X									X																																					2
Hispanic American studies					X																																														1
Histology																				X																					X								2

*D.C. offers Associate program--not included in this figure

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Home economics education	X				X									X																																				3
Home economics, general	X	X	X	X	X	X			X	X		X	X	X	X	X				X		X	X	X	X		X				X	X	X	X	X		X		X	X	X		X						30
Home furnishings and equipment management/production/services	X		X						X							X	X			X			X																							X			X	9
Horticultural science				X	X	X			X	X		X	X	X	X	X				X		X	X		X						X	X	X		X					X		X		X	X			21
Horticulture					X				X	X			X	X	X			X													X	X		X						X	X			X				13
Human and animal pharmacology																																X																	1
Human and animal physiology																X										X						X									X								4
Human environment and housing					X											X						X	X																										4
Human resources development					X																										X																		2
Illustration design					X				X					X						X					X						X		X		X	X	X						X					10
Individual and family development			X		X		X		X			X			X	X					X	X	X		X													X				X				X			14
Industrial and organizational psychology																																							X										1
Industrial arts education					X				X				X	X		X																																	5
Industrial design									X																																								1
Industrial engineering					X		X			X			X			X					X	X				X							X							X		X				X			12
Industrial equipment maintenance and repair	X				X								X	X	X				X			X							X	X	X		X			X			X	X		X			X		X	17
Information sciences and systems				X	X	X			X	X			X			X			X	X	X	X	X						X	X	X		X	X		X			X	X		X						22
Inorganic chemistry				X																				X								X									X			X					5

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Institutional management						X																																												1
Insurance and risk management	X		X		X	X				X			X		X						X	X									X	X	X	X	X	X				X					X	X	X		19
Interior design			X		X	X	X		X				X	X	X	X	X			X	X	X			X						X	X	X	X		X				X	X	X		X	X	X	X		26
International business management									X																																									1
International public service									X																																										1
International relations				X																																															1
Interpreter for the deaf			X		X		X		X				X			X															X			X	X					X	X			X		X		13
Investment securities																						X																												1
Italian					X		X																									X										X			X			X	5
Japanese					X																																													1
Junior high education					X				X	X			X	X	X	X	X			X	X		X			X					X	X					X											X	16
Labor/industrial relations					X		X			X				X	X		X					X									X	X		X			X								X	X		13
Landscape architecture					X	X			X	X						X	X														X			X											X				9
Latin					X		X																																			X							3
Latin American studies									X																																									1
Law					X									X																																					2
Linguistics																																											X								1

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WV	WI	WY	Total No. of States
Manufacturing technology			X		X					X			X	X	X	X	X				X		X					X		X	X	X		X			X						X		X			17
Marine biology							X													X												X													X				4
Marine maintenance		X													X																																		2
Marketing and distributive education														X																																				1
Marketing research																							X																											1
Masonry/tile setting	X		X		X											X				X												X	X					X										9
Materials engineering																										X											X												2
Mathematics education	X				X									X		X																						X										X		6
Medical illustrating																																X														X				2
Medical laboratory	X								X					X	X		X				X											X	X		X			X						X				12
Medical radiation dosimetry					X																							X																X					3
Medical records administration									X					X	X	X												X			X	X		X									X					10
Metal/jewelry																X															X					X								X				4
Metallurgical engineering			X																						X	X																							3
Metallurgy					X																																										X			2
Mexican/American studies					X																																							X					2
Microbiology					X											X												X					X				X					X					6
Microcomputer software									X				X			X													X					X		X	X							X				8

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Military science (Army)									X	X						X									X					X						X													7
Mining and mineral engineering																	X																															X			2
Mining and petroleum technologies		X											X				X											X		X																X		X		X	8
Missionary studies																									X							X						X												3
Museum studies																																																X			1
Music education	X				X									X		X																			X													X		6
Music history and appreciation					X				X	X					X	X						X	X				X						X			X	X				X								12
Music performance	X															X															X	X		X		X													6
Music theory and composition													X	X		X																	X		X		X													6
Nuclear engineering																									X																					X				2
Nurse anesthesist														X																																				1
Nutritional education														X																																				1
Occupational safety and health technology								X		X		X											X																					X		X				6
Ocean engineering										X															X																										2
Oceanographic technologies																																																X		X		2
Oceanography				X		X				X																							X																		4
Operations research						X																																													1
Optical technology		X					X								X																		X																		4

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Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Optometry									X							X																		X										X						4
Organic chemistry																							X									X										X						4
Painting					X					X			X			X																				X								X						6
Parks and recreation management					X	X	X		X	X			X		X					X	X		X		X							X	X		X		X				X	X	X		X			X	20
Peace studies																					X																														1
Petroleum engineering					X											X									X	X										X								X						6
Pharmacy									X	X					X	X							X									X	X	X					X			X	X							11
Physical chemistry																																										X				X				2
Physical education	X		X		X	X			X	X				X		X								X								X		X		X			X			X		X			X	X	16
Physical therapy			X		X				X	X			X		X	X					X		X									X	X	X								X						X	14
Physician's assistant					X										X																	X			X		X												5
Plant protection					X																																X													1
Plant sciences			X		X																											X									X						X	5
Plastic technology													X	X	X							X										X			X									X					7
Plumbing/pipefitting/steamfitting	X		X		X						X				X	X			X													X	X																9
Portuguese																														X														X						2
Poultry				X																												X	X										X					X	5
Power plant operation and maintenance			X						X				X													X				X			X		X									X	X				X		9

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Predentistry	X				X				X	X			X	X	X	X						X	X								X	X	X	X		X				X	X			X				X	19
Prelaw	X				X				X	X			X	X	X	X						X			X						X	X	X	X		X				X	X							X	18
Premedicine	X				X	X			X	X			X	X	X	X						X	X	X	X						X	X	X	X	X	X				X	X			X				X	23
Prepharmacy	X				X				X	X			X	X	X	X						X	X								X	X	X	X	X	X				X	X			X				X	20
Preveterinary	X				X				X	X			X	X	X	X						X	X	X	X						X	X		X	X	X				X	X			X				X	21
Psycholonguistics																																						X												1
Public health laboratory science					X																																												X	2
Public relations			X											X		X				X	X										X						X												8
Public sanitation					X																																												1
Pure mathematics									X																																								1
Quality control technology			X		X																X								X				X	X								X				X		8
Quantitative psychology																X																											X						2
Radio/television technology	X		X		X				X							X	X			X	X	X	X								X					X				X	X		X	X		X		18
Radiobiology																																											X						1
Range management					X								X			X																											X					X	6
Reading education														X																																			1
Religion	X	X			X		X		X	X			X	X			X					X			X	X	X					X		X	X	X		X			X	X		X				X	22
Religious education				X						X		X			X	X							X		X						X	X			X	X	X		X	X	X								15

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Religious music					X					X		X											X	X	X																	X				X				8
Remedial education																																															X		1
Renewable natural resources, general		X			X	X				X		X	X	X	X						X		X						X		X	X				X	X					X				X	17
Respiratory therapy	X										X		X	X							X	X	X			X	X				X		X			X					X			X	X		X	16
Rhetoric													X																																				1
Robotics					X	X		X					X	X	X	X						X			X				X		X	X		X		X		X				X	X			X			18
Russian					X																											X																	1
Sanitation technology																																															X		1
Scandinavian languages																										X																						1
School psychology																X																X									X					X	4
Science education	X				X									X								X															X									X	6
Secondary education	X		X	X	X				X	X			X	X	X	X	X			X	X	X	X	X	X	X	X			X	X	X		X	X	X	X			X	X	X				X	30
Social psychology																																											X					1
Social science education					X									X		X						X																X									X	6
Social studies education					X									X		X																															X	4
Soil sciences					X							X	X	X	X	X							X			X				X	X		X	X							X		X			X	15
Specific learning disabilities																																													X			1
Speech correction															X																																	1

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Speech pathology/audiology					X										X						X																													3
Speech/debate/forensics			X	X	X				X	X			X	X		X									X						X	X	X		X	X					X				X			X	17
Sports medicine						X			X							X															X								X										5
Statistics					X					X		X																				X										X								6
Surgical technology	X			X					X	X			X		X				X		X	X		X	X		X		X	X	X			X	X		X	X			X	X	X	X	X	X	X	X	27
Survey and mapping technology		X				X			X				X	X				X		X	X									X	X			X	X						X						X		15
Survey and mapping sciences					X				X					X											X							X										X						X		6
Systems analysis					X	X			X	X	X		X	X							X	X									X				X		X				X					X		X	15
Taxation																															X										X				X				3
Teaching English as a second language/foreign language					X																																						X								2
Technical and business writing																X															X				X						X								5
Technical education																						X									X																		2
Textile engineering																																								X										1
Textile technology	X				X				X	X																	X				X	X					X		X		X	X			X	X			13
Theological studies												X			X										X							X		X																5
Tourism					X				X				X								X	X						X			X			X			X	X					X	X		X		X		14
Trade and industrial education	X			X							X			X								X								X	X																			7
Trade and industrial supervision and management	X		X		X					X			X	X			X					X							X			X		X											X	X		X		15

Table C-2 (continued)

Academic Majors at Associate Degree Level . . . NOT Offered in New Jersey, CONT'D.

Major Fields of Study	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	Total No. of States
Transportation and travel marketing					X				X				X								X	X									X	X		X			X				X			X				12
Transportation management	X		X		X								X									X							X			X		X	X	X		X	X			X	X	X		X	X		X		15
Urban planning technology																				X																														1
Vehicle and equipment operation			X												X																									X			X		X	X				6
Video																																										X					X			2
Water and wastewater technology			X		X				X				X		X						X	X									X													X		X	X	X	11
Water resources					X																																													1
Welding technology	X		X		X				X		X		X		X	X	X				X	X			X				X	X	X	X		X		X					X	X			X		X	X	24
Wildlife management					X								X								X		X								X	X		X			X				X					X		X	11
Woodworking					X	X								X		X			X																														5
Zoology			X	X	X																																												3
Program Totals	53	13	54	26	147	38	20	1	89	58	13	22	73	60	74	113	19	7	21	32	47	66	57	17	47	21	30	5	18	17	100	99	24	72	35	55	62	4	29	21	44	114	18	8	37	82	12	37	61	X

APPENDIX D

THE FUTURE EMPLOYMENT PICTURE AND HIGH-TECHNOLOGY JOBS

Table D-1

TWENTY FASTEST GROWING OCCUPATIONS 1982-1995

Occupation	Percent Growth in Employment
Computer service technicians	96.8
Legal assistants	94.3
Computer systems analysts	85.3
Computer programmers	76.9
Computer operators	75.8
Office machine repairers	71.7
Physical therapy assistants	67.8
Electrical engineers	65.3
Civil engineering technicians	63.9
Peripheral EDP equipment operators	63.5
Insurance clerks, medical	62.2
Electrical and electronic technicians	60.7
Occupational therapists	59.8
Surveyor helpers	58.6
Credit clerks, banking and insurance	54.1
Physical therapists	53.6
Employment interviewers	52.5
Mechanical engineers	52.1
Mechanical engineering technicians	51.6
Compression and injection mold machine operators, plastics	50.3

Source: Monthly Labor Review, November 1983, "Occupational Employment Projections to 1995"

Table D-2

FIRST TWENTY OCCUPATIONS WITH LARGEST JOB GROWTH 1982-1995

Occupation	Change in Total Employment (in thousands)	Percent of Total Job Growth
Building custodians	779	3.0
Cashiers	744	2.9
Secretaries	719	2.8
General clerks, office	696	2.7
Salesclerks	685	2.7
Nurses, registered	642	2.5
Waiters and waitresses	562	2.2
Teachers, kindergarten and elementary	511	2.0
Truckdrivers	425	1.7
Nursing aides and orderlies	423	1.7
Sales representatives, technical	385	1.5
Accountants and auditors	344	1.3
Automotive mechanics	324	1.3
Supervisors of blue-collar workers	319	1.2
Kitchen helpers	305	1.2
Guards and doorkeepers	300	1.2
Food preparation and service workers, fast food restaurants	297	1.2
Managers, store	292	1.1
Carpenters	247	1.0
Electrical and electronic technicians	222	.9

Table D-3

SECOND TWENTY OCCUPATIONS WITH LARGEST JOB GROWTH 1982-1995

Occupation	Change in Total Employment (in thousands)	Percent of Total Job Growth
Licensed practical nurses	220	.9
Computer systems analysts	217	.8
Electrical engineers	209	.8
Computer programmers	205	.8
Maintenance repairers, general utility	193	.8
Helpers, trades	190	.7
Receptionists	189	.7
Electricians	173	.7
Physicians	163	.7
Clerical supervisors	162	.6
Computer operators	160	.6
Sales representatives, nontechnical	160	.6
Lawyers	159	.6
Stock clerks, stockroom and warehouse	156	.6
Typists	155	.6
Delivery and route workers	153	.6
Bookkeepers, hand	152	.6
Cooks, restaurants	149	.6
Bank tellers	142	.6
Cooks, short order, specialty and fast food	141	.6

Table D-4

HIGH TECHNOLOGY JOBS
1982-1995

Defining Criteria:

#1:	Technology-oriented workers 1½ times average for all industries (48 industries)	16-17% of new jobs
#2:	Research and development expenditures to net sales twice the average for all industries (6 industries)	3- 4% of new jobs
#3:	Combination (28 industries)	8- 9% of new jobs

Outlook:

—Out of 23.4-28.6 million new jobs, 1.0 to 4.6 million in high technology industries

Source: *Monthly Labor Review*, November 1983, "High Technology Today and Tomorrow: A Small Slice of the Employment Pie"

Table D-5

PROJECTED 1982-95 GROWTH IN TECHNOLOGY-ORIENTED OCCUPATIONS (IN THOUSANDS)

Occupational Group	Employment 1982	Employment 1995	Change 1982-95 Number	Change 1982-95 Percent
All Occupations	101510	127110	26600	25.2
Professional	16584	21775	5191	31.3
Tech. Oriented	3287	4795	1508	45.9

Source: *Monthly Labor Review*, November 1983, "High Technology Today and Tomorrow: A Small Slice of the Employment Pie"

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